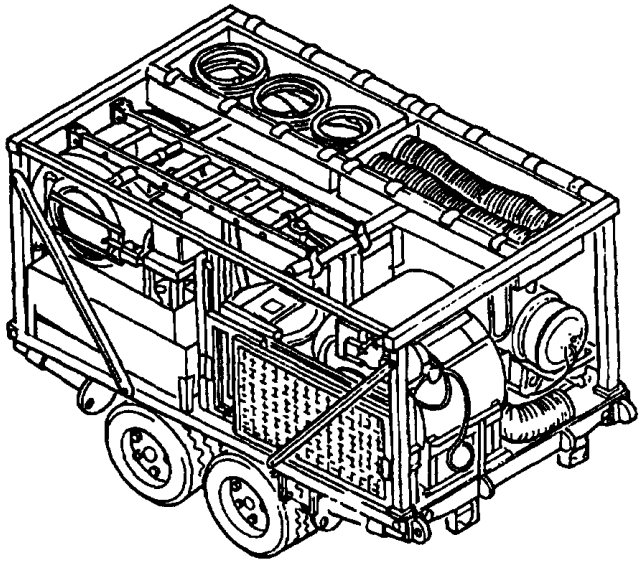
*TM 10-3510-222-10

OPERATOR'S MANUAL



LAUNDRY UNIT,
TRAILER MOUNTED
MODEL: M85-100 NSN 3510-01-291-8169 EIC: (2LF)
MODEL: M85-200 NSN 3510-01-365-5687 EIC: (2LG)

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

***This manual supercedes TM 10-3510-222-10, dated 30 April 1993, including all changes, and TM 10-3510-220-10, dated 20 April 1990, including all changes.**

HEADQUARTERS, DEPARTMENT OF THE ARMY
31 OCTOBER 2003

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WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation of this equipment. Failure to observe these precautions could result in serious injury or death to personnel. Also included are explanations of safety and hazardous materials icons used within this technical manual.

EXPLANATION OF SAFETY WARNING ICONS

BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.

ELECTRICAL - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.

SHARP OBJECT - pointed object in hand shows that a sharp object presents a danger to limb.

HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.

HEAVY OBJECT **–** human figure stooping over heavy object shows physical injury potential from improper lifting technique.

CARBON MONOXIDE – human figure showing gaseous substance being inhaled into respiratory system, demonstrating potential hazard.

FLYING PARTICLES - arrows bouncing off face with face shield shows that particles flying through the air will harm face.

HEAVY PARTS - hand with heavy object on top shows that heavy parts can crush and harm.

HEAVY PARTS - heavy object pinning human figure against wall shows that heavy, moving parts present a danger to life or limb.

EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.

FIRE - flame shows that a material may ignite and cause burns.

HOT AREA - hand over object radiating heat shows that part is hot and can burn.

HELMET PROTECTION - arrow bouncing off head with helmet shows that falling parts present a danger.

EAR PROTECTION - headphones over ears shows that noise level will harm ears.

MOVING PARTS - hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING

Carbon monoxide is without color or smell, but can kill you. Breathing carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Brain damage or death can result from heavy exposure. Carbon monoxide occurs in the exhaust fumes of fuel-burning heaters and internal combustion engines. Carbon monoxide can become dangerously concentrated under conditions of no ventilation.

Precautions must be followed to ensure operator's safety when the Laundry Unit is in operation.

- DO NOT operate Laundry Unit in an enclosed area without proper ventilation.
- BE ALERT at all times during operating procedures for carbon monoxide poisoning. If symptoms are present, IMMEDIATELY evacuate personnel to fresh air.
- BE AWARE the field protection mask used for nuclear-biological-chemical attack WILL NOT protect you from carbon monoxide poisoning.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

Remove rings, bracelets, wristwatches, and neck chains before working around or on the Laundry Unit. Jewelry can catch on equipment and cause injury, or may short across an electrical circuit and cause severe burns or electrical shock.

WARNING

Do not operate the unit until the ground terminal of the engine-generator set has been connected to a suitable ground. Electrical faults in the engine-generator set, load lines, or load equipment can cause death by electrocution from contact with an ungrounded system.

WARNING

Do not make or change electrical connections while the laundry is in operation. The voltage generated by the generator can cause death by electrocution. Keep moisture away from the generator and keep the surrounding area dry when operating the unit. Failure to observe this warning may result in death by electrocution.

WARNING

Ensure that the power distribution cable is not frayed or damaged and does not lie in water. Serious injuries or electrocution could result.

WARNING

Death or serious injury could occur if compressed air is directed against the skin. Do not use compressed air for cleaning or drying unless the pressure is, or has been reduced to 30 psi (211 kPag) or less. When working with compressed air always use chip guards, eye protection and other personnel protective equipment.

WARNING

Do not touch cold metal parts with bare hands. Frostbite can cause permanent injury to personnel.

WARNING

Do not direct high-pressure water hose nozzles or steam cleaner nozzles into electrical connections/junction boxes. Electrical shock can kill you.

WARNING

Be careful not to come in contact with rotating belts or other moving parts. To do so will cause serious injury.

WARNING

Do not service the unit with fuel while the unit is in operation. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

Fuels are toxic and flammable. Wear protective goggles and refuel only in a well-ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. If you become dizzy, get fresh air immediately and get medical aid. If contact with eyes or skin is made, immediately flush with clean water and get medical aid for eyes immediately.

WARNING

Serious hearing loss or deafness could occur if this equipment is operated without professionally-fitted ear protection for operating and maintaining personnel. The noise level for this equipment exceeds the allowable limits for unprotected personnel. Unprotected/unnecessary personnel must be kept out of the immediate area.

WARNING

Do not disconnect quick disconnect (QD) couplings while water system is pressurized. Hose end may whip causing injury to personnel and damage to equipment.

WARNING

Exhaust ducts are hot. Avoid touching exhaust ducts during shutdown to prevent burns.

WARNING

Electrical high voltage cannot be seen, but it can kill you. Electricity is unlike most other dangerous things you can come in contact with because it gives no warning and no symptoms to be wary of. Its effect is immediate. It can kill you, render you unconscious, or severely burn you. To ensure your safety and that of other maintenance personnel, always observe the following precautions:

- DO NOT perform any maintenance on electrical equipment unless all power is removed.
- BE CERTAIN that there is someone assisting you who can remove power immediately.
- ALWAYS place POWER OFF warning tags on power supply switches so that no one will apply power while you are performing maintenance.
- FOR ARTIFICIAL RESPIRATION, REFER TO FM 21 –11.

WARNING

If EMERGENCY SHUTDOWN is required, turn MASTER SWITCH on generator control panel to OFF. Refer to TM 5-6115-585-12 and familiarize yourself with the location of this switch. All electrical power to Laundry Unit will be cut off. Failure to observe this warning may result in serious injury or death to personnel.

NOTE

To prevent sagging of the tarpaulin caused by accumulated rainwater, plywood sheets may be laid over the top frame as shown in WP 0008

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INSERT LATEST UPDATED PAGES/WORK PACKAGES. DESTROY SUPERSEDED DATA

LIST OF EFFECTIVE PAGES

Note: The portion of text affected by the update is indicated by a vertical line in the outer margins of the page. Updates to illustrations are indicated by miniature pointing hands. Updates to wiring diagrams are indicated by shaded areas.

Dates of issue for original and updated pages/work packages are:

Original 0 31 OCT 03

Revision

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 24 AND TOTAL NUMBER OF WORK PACKAGES IS 017 CONSISTING OF THE FOLLOWING:

Page / WP No.	*Revision No.	Page / WP No.	*Revision No.
Front Cover	0		
a-e/(f Blank)	0		
A-B	0		
i-v	0		
WP 0001-0017	0		
Index 1-4	0		
Authentication	0		
Electronic 2028 Inst	0		
Sample DA Form 2028	0		
Blank DA Form 2028	0		
Back Cover	0		

*Zero in this column indicates an original page or work package

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TM 10-3510-222-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 31 October 2003

OPERATOR'S MANUAL

LAUNDRY UNIT, TRAILER MOUNTED MODEL: M85-100 NSN 3510-01-291-8169 MODEL: M85-200 NSN 3510-01-365-5687

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter together with DA Form 2028 (Recommended Changes to Publications and Blank Forms), located in the back of this manual, directly to: Commander, U.S. Army Soldier and Biological Chemical Command, ATTN: AMSSB-RIM-L (N), Kansas Street, Natick, MA 01760-5052. You may also send in your recommended changes via electronic mail directly to amssbriml@natick.army.mil. A reply will be furnished to you. Instructions for sending an electronic 2028 may be found at the back of this manual immediately preceding the hard copy 2028.

DISTRIBUTION STATEMENT A – Approved for public release. Distribution is unlimited.

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HOW TO USE THIS MANUAL

This manual contains General Information, Operating Instructions, Operator Preventive Maintenance Checks and Services (PMCS), Troubleshooting, and Maintenance/Repair instructions for the M85 Series Trailer Mounted Laundry.

Chapter 1 contains introductory information on the laundry and its associated equipment as well as a Theory of Operation. Chapter 2 includes operating instructions under usual and unusual conditions. Chapter 3 contents include operator troubleshooting, PMCS, and service procedures. Chapter 4 contains maintenance instructions. Chapter 5 contains references and other supporting information.

Manual Organization and Page Numbering System. The manual is divided into five major chapters that detail the topics mentioned above. Within each chapter are work packages covering a wide range of topics. Each work package is numbered sequentially starting at page 1. The work package has its own page numbering scheme and is independent of the page numbering used by other work packages. Each page of a work package has a page number of the form XXXX YY-ZZ where XXXX is the work package number (e.g. 0010 is work package 10) and YY is the revision number for that work package and ZZ represents the number of the page within that work package. A page number such as 0010 00-1/2 blank means that page 1 contains information but page 2 of that work package has been intentionally left blank.

Finding Information. The Table of Contents permits the reader to find information in the manual quickly. The reader should start here first when looking for a specific topic. The Table of Contents lists the topics contained within each chapter and the Work Package Sequence Number where it can be found.

Example: If the reader were looking for instructions on “Preventive Maintenance Checks and Services”, which is an Operator Maintenance topic, the Table of Contents indicates that Operator Maintenance information can be found in Chapter 4. Scanning down the listings for Chapter 4, “Preventive Maintenance Checks and Services” information can be found in WP 0012 00 (i.e. Work Package 12).

An Alphabetical Index can be found at the back of the manual. It lists specific topics with the corresponding work package.

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
GENERAL INFORMATION

SCOPE.
This technical manual describes the operating procedures for the M85 Series Trailer Mounted Laundry Units. The information and procedures in this manual are applicable to all versions of the M85 Series Trailer Mounted Laundry, except where noted.

The Model M85 Series Trailer Mounted Laundries are usually found in support of field hospital and reconstitutive operations.

Type of Manual: Operator's

Model Number and Equipment Name: Laundry Unit, Trailer Mounted, Model M85-100 NSN 3510-01-291-8169, and M85-200, NSN 3510-01-365-5687 (Refer to Figure 1).

Purpose of Equipment: The M85 Series Trailer Mounted Laundry Units provide troop units and field hospitals with on-site laundry service for cotton, woolen, and durable press items. Each laundry unit has a washing and drying capacity of 120 lbs (54kg) of laundry per hour.

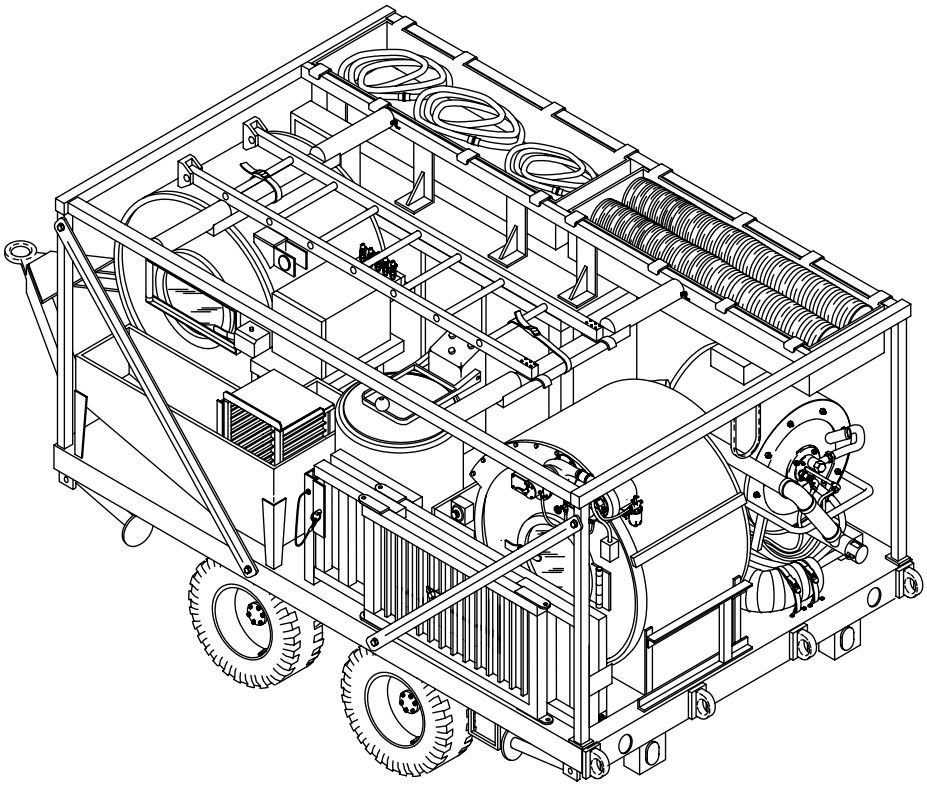

Figure 1. Laundry Unit, Trailer Mounted, Model M85-100 and M85-200

MAINTENANCE FORMS AND PROCEDURES.
Department of the Army forms and procedures for equipment maintenance will be those prescribed by DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS) (Maintenance Management Update).

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIRs).
If your M85 Series Laundry needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF368 (Product Quality Deficiency Report). Mail it to the address specified in DA PAM 738-750, or as specified by the contracting activity. We will send you a reply.

CORROSION PREVENTION AND CONTROL (CPC).
Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any problems with this item be reported so the problem can be corrected and improvements can be made to prevent the problem in future items.

While corrosion is typically associated with the rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

If a corrosion problem is identified, it can be reported using SF 368, (Product Quality Deficiency Report). Check the box to indicate that the problem may be corrosion-related. Using key words such as "rust", "deterioration" "pitting", or "cracking" or even including color photos of the corroded area will aid problem diagnosis and solution.

Submit completed SF 368 specifying a corrosion problem to the address specified in DA PAM 738-750.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE.
Methods and procedures for destruction of Army materiel to prevent enemy use are covered in TM 750-244-3, Procedures for Destruction of Equipment to Prevent Enemy Use.

PREPARATION FOR STORAGE OR MOVEMENT.
See Shutdown and Preparation for Movement (WP 0008) for procedures that insure safe storage or shipment of the heater.

WARRANTY
The laundry unit components are warranted by the manufacturer for a period of 12 months. The warranty starts on the date found in block 23 of DA Form 2408-9, in the logbook. Report defects in material or workmanship to your supervisor, who will take appropriate action through organizational maintenance.

NOMENCLATURE CROSS-REFERENCE LIST.

Common Name	Official Nomenclature
Air Compressor	Compressor Assembly, Air
Controller (Panel)	Control, Programmer (Washer)
Dryer	Dryer Assembly, Tumbler
Dryer Bin	Bin Assembly, Dryer
Extractor	Extractor Assembly
Generator	Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 10 Kw, 3 Phase, 120/208 Volts (60 Hz)
Platform	Platform Assembly, Work
Trailer	Trailer, Flat-bed, Gen. Purpose 5 Ton, 4 Wheel, XM1061E1
Washer	Washing Machine, Laundry, Open-End Type Model 360 EW/ACJ, 3626 OEW/NAT, or 36260EW/EASIW2
Washer Formula Card	Uniform Nurse Timer Card
Water Pump	Water Pump and Motor Assembly
Water Heater	Heater, Water, Liquid Fuel: M-85
Wet Wash Bin	Bin Assembly Pre-extract
Water Tank	Tank, Fabric, Self-Supporting, 3000 Gallon

LIST OF ABBREVIATIONS/ACRONYMS.

AAL	Additional Authorization List	in	Inches
AC	Alternating Current	Kg	Kilogram
AR	As Required	kPa	Kilopascal(s)
BDU	Battle Dress Uniform	Lbs	Pounds
BII	Basic Issue Item	lt	Liter
COEI	Component of end item	m	Meter
CAGE	Commercial And Government Entity	MSDS	Material Safety Data Sheet
CPC	Corrosion Prevention Control	MTOE	Modified Table of Org and Equipment
CW	Clockwise	N/A	Not Applicable
CCW	Counterclockwise	NBC	Nuclear, Biological, Chemical
		NIIN	National Item Identification Number
CSSL	Containerized Self-service Laundry	POL	Petroleum, Oil and Lubricant
cm	Centimeter	QD	Quick Disconnect
^{0}C	Degrees Celsius (Centigrade)	qt	Quart
^{0}F	Degrees Fahrenheit	rpm	Revolutions per Minute
dia	Diameter	RPSTL	Repair Parts and Special Tools List
ea	Each	TMDE	Test, Measurement, and Diagnostic Equipment
EIR	Equipment Improvement Recommendation	TOE	Table of Organization and Equipment
ft	Foot	U/M	Unit of Measure
GFCI	Ground Fault Circuit Interrupt	UOC	Usable On Code
GPM	Gallons per Minute	UV	Ultra Violet
hr	Hour	VAC	Volt Alternating Current
Hz	Hertz	W	Watt(s)
IAW	In Accordance With	WP	Work Package
hp	Horsepower	wt	Weight

SAFETY, CARE AND HANDLING, WARNINGS, CAUTIONS AND NOTES.
Always pay attention to Warnings, Cautions and Notes appearing throughout the manual. They will appear prior to applicable procedures. Ensure you read and understand their content to prevent serious injury to yourself and others, or damage to equipment. A summary of Warnings appears at the front of this manual.

CHAPTER 1

DESCRIPTION
AND
THEORY OF OPERATION
LAUNDRY UNIT, TRAILER MOUNTED

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES.

CHARACTERISTICS	CAPABILITIES AND FEATURES
• Self-contained laundry center. • Can be operated with municipal water, or any approved natural source. • Suitable for unprotected operation in temperatures above 32^0 F. • Requires protection for operation in sustained temperatures below 32^0 F. • Trailer mounted, off-road mobility. • Requires JP-8 (diesel) fuel for operation. • Generator powered.	• Capable of washing and drying 120 pounds (54 kg) of cotton, woolen, and durable press items in one hour, with two operators. • Capable of variable temperature hot and cold water washing. • Can be used for the decontamination of clothing from chemical and bacteriological warfare agents and radioactive materials.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.

1. **Washer**. The washer (1) on all models is an open-end loader, reversible cylinder type. It can be operated manually or automatically. The washer on the M85 model has an interlock switch mounted on the door hinge (2). On the M85-100 and –200 models, this switch is mounted to the front of the washer (3) to engage the door handle that is mounted to a bar frame (4).

2. **Washer Control Panel**. The M85-100 and –200 Washer control panel (5) controls the automatic operation of these washers, using washer formula cards. On the M 85-200 the cards and punch are located in the box on top of the control panel (5).

3. **Power Distribution Panel**. The power distribution panel (6) is located behind the control stand and contains one main and five subsystem circuit breakers.

4. **Dryer**. The dryer assembly (7) is an open-end loader, nonreversible cylinder type. The dryer dries the clothes after they are removed from the extractor.

5. **Tool Box**. The toolbox (8) is intended for storage of tools to be used on the laundry unit.

6. **Work Platform**. The work platform (9) supports personnel operating the washer, extractor, and dryer. It also provides access to other laundry unit components on the trailer bed.

7. **Dryer Bin**. The dryer bin (10) provides a holding place for the dry clothes after they are removed from the dryer. In the packed configuration the dryer bin is stored on the right-hand side of the trailer.

8. **Extractor**. The extractor (11) is a heavy-duty, top-loading, spinning cylinder that removes excess water from the clothes before they are placed in the dryer.

9. **Wet Wash Bin**. Wet clothes taken out of the washer are deposited in the wet wash bin (12) before they are place in the extractor.

10. **Air Compressor**. The air compressor (13) provides air pressure for the operation of the water valves and washer air tank. It is mounted to the bottom of the controller stand.

11. **Washer Control Stand**. The washer control stand (14) houses the washer controller and supports the air compressor.

12. **Hose Basket**. The hose basket (15) provides storage for hoses, heater ducts, and other equipment.

13. **Fire Extinguisher**. The portable fire extinguisher (16) is provided for emergency use in case of fire.

14. **Water Pump**. The water pump (17) provides fresh water from the source to the laundry unit at the rate of 18-20 GPM (65.82 –73.14 liters). It requires priming when first used.

15. **Ladder**. The Ladder (18) provides personnel access to the hose baskets located atop the support frame.

16. **Sound Mitigation Panels**. The sound mitigation panels (19) are installed behind the generator and shield the operator from the noise produced by the generator motor.

17. **Generator**. The 10kw skid-mounted generator (20) provides electrical power to major components of the laundry unit.

18. **Water Heater**. The water heater (21) heats incoming water to the temperature required by the washer.

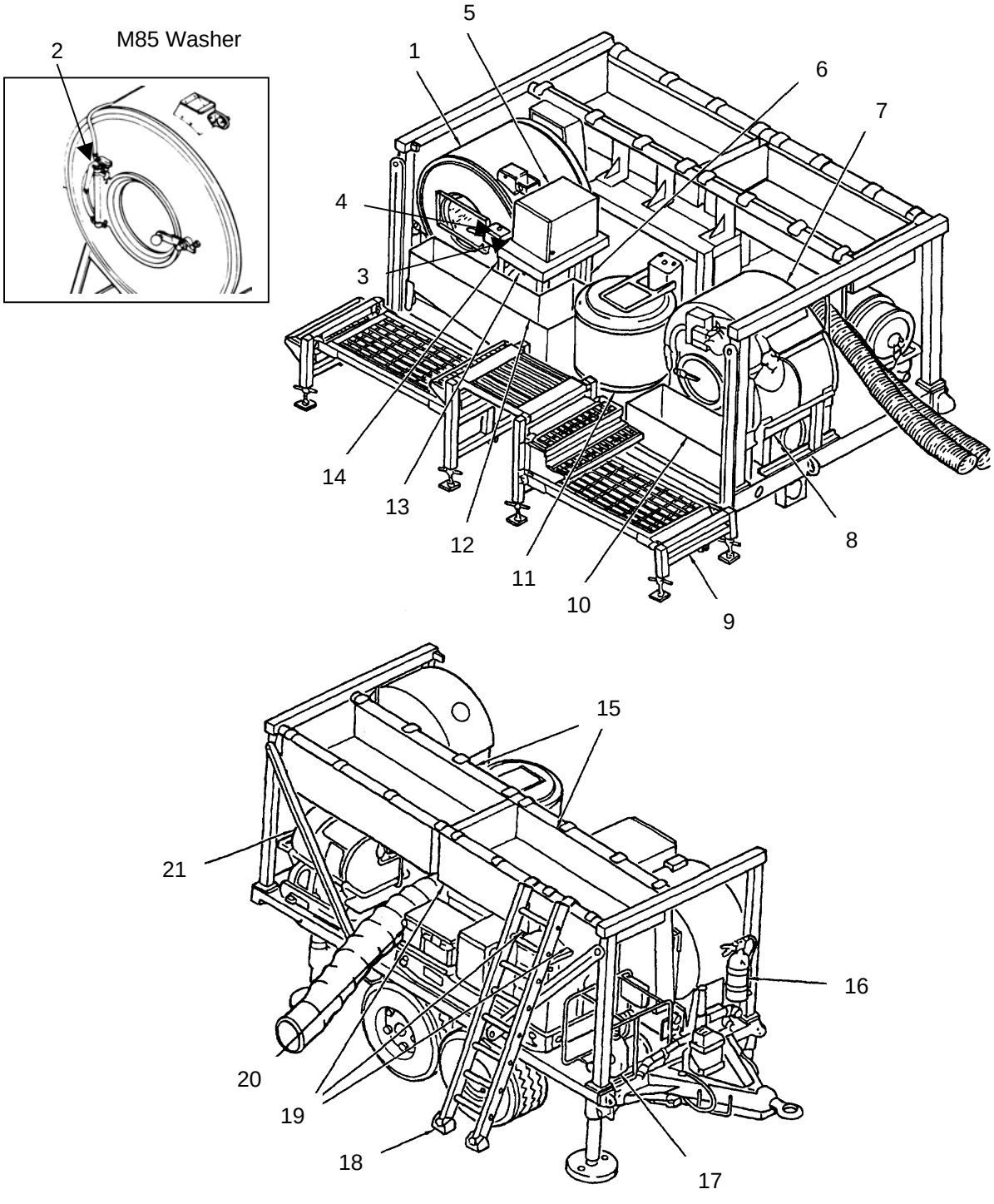

Figure 1. Location of Major Components

COMMON TOOLS AND EQUIPMENT

For authorized common tools and equipment, refer to the applicable Modified Table of Organization and Equipment (MTOE), CTA 50-970, Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items, as applicable to your unit.

EQUIPMENT DATA

The following data pertains to the components indicated. Full data is provided in the M85-200 column, with difference for other Models indicated. Comparable data for the M-85 Water Heater, the XM1061E1 Trailer, and the 10kw skid mounted generator can be found in the equipment publications referenced in Work Package 0013 00).

Laundry Unit	M85-100	M85-200
Length	18ft 2in (5.54m)	18ft 2in (5.54m)
Height	7 ft 10in (2.3gm)	7 ft 10in (2.3gm)
Width	8ft (2.44m)	8ft (2.44m)
Weight	12,645 lb (5,748 kg)	12,570 lb (5,687 kg)
Power Requirement	Class L, 60 AMP, 208VAC, 3-phase	Class L, 60 AMP, 208VAC, 3-phase
Fuel Requirements	Diesel (Item WP 0017 00)	Diesel (Item WP 0017 00)
Washer		
Model Number	3626 OEW/NAT	3626 OEW/EASIW2
Capacity	60 lb (27 kg)	60 lb (27 kg)
Weight	950 lb (428 kg)	950 lb (428 kg)
Maximum Speed	33 rpm	33 rpm
Water Pressure Required	10 psi (69 kPa) minimum, 75 psi (517 kPa) maximum	10 psi (69 kPa) minimum, 75 psi (517 kPa) maximum
Air Pressure Required	30 psi (207 kPa) minimum, 110 psi (758 kPa) max.	30 psi (207 kPa) minimum, 110 psi (758 kPa) max.
Washer Motor		
Volt	208VAC	208VAC
Phase	3	3
Frequency	60Hz	60Hz
AMP	5.3-5/2.5	5.3-5/2.5
Power Rating	1.5hp (1119W)	1.5hp (1119W)
Motor Speed	1725 rpm	1725 rpm
Extractor		
Model Number	605 MIL	605 MIL
Capacity	30 lb (14 kg)	30 lb (14 kg)
Weight	609 lb (276 kg)	609 lb (276 kg)
Volt	208/220VAC	208/220VAC
Phase	3	3
Frequency	60 Hz	60 Hz
AMP	9.3	9.3
Power Rating	3 hp (2237W)	3 hp (2237W)
Motor Speed	1750 rpm	1750 rpm

Laundry Unit	M85-100	M85-200
Dryer		
Model Number	30 lb (14 Kg)	LDU-300
Capacity	30 lb (14Kg)	30 lb (14Kg)
Weight	1060 lb (480 Kg)	1060 lb (480 Kg)
Burner Blower and Fuel Pump Motor		
Volt	200/230VAC	200/230VAC
Phase	3	3
Frequency	60 Hz	60 Hz
AMP	1.8-2.0/1.0	1.8-2.0/1.0
Power Rating	1/2 hp (373 W)	1/2 hp (373 W)
Motor Speed	3450 rpm 1/, 1725 rpm 2/	3450 rpm 1/, 1725 rpm 2/
Tumbler Cylinder Motor		
Volts	208VAC	208VAC
Phase	3	3
Frequency	60HZ	60HZ
AMP	2.1	2.1
Power Rating	½ (373 W)	½ (373 W)
Motor Speed	1275 rpm	1275 rpm
Tumbler Exhaust Motor		
Volt	208VAC	208VAC
Phase	3	3
Frequency	60HZ	60HZ
AMP	2.1	2.1
Power Rating	½ (373 W)	½ (373 W)
Motor Speed	1275 rpm	1275 rpm
Air Compressor		
Model Number	GH-510B	GH-510B-PS
Weight	32 lb (14 Kg)	32 lb (14 Kg)
Volts	208/230VAC	208/230VAC
Phase	3	3
Frequency	60Hz	60Hz
Amps	2.0 - 1.9/.95	2.0 - 1.9/.95
Power Rating	1/2 hp (373 W)	1/2 hp (373 W)
Motor Speed	1725 rpm	1725 rpm
Water Pump		
Model Number	3SCE-22/27458-CA-T	4057E-3S
Weight	67 lb (30 kg)	67 lb (30 kg)
Capacity	18-20 gpm (68-76 lt/ min) at 65- foot (19.8 m) head.	18-20 gpm (68-76 lt/ min) at 65- foot (19.8 m) head.
Type	Centrifugal, self-priming after initial prime.	Centrifugal, self-priming after initial prime.
Pump Motor		
Volts	208/230 vac	208/230 vac
Phase	3	3
Frequency	60 Hz	60 Hz
Amps	5.0 - 4.6/2.3 amps	5.0 - 4.6/2.3 amps
Power Rating	1.5hp(1119W)	1.5hp(1119W)
Motor Speed	3450 rpm	3450 rpm

REFERENCES.
The following list contains publications necessary, or helpful, to support the M85 Series Laundry Units operation.

Item/Function	Technical Manual Title	TM Number
Heater, Water, Liquid Fuel: M-85	Operator's, Unit and Direct Support Maintenance Manual including RPSTL for Heater, Water, Liquid Fuel: M-80/M85	TM 10-4520-259-13&P
Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 10 Kw, 3 Phase, 120/208 Volts (60 Hz)	Operator and Organizational Maintenance Manual for Generator Set, Diesel (60 Hz), Engine Driven, Tactical Skid MTD, 10Kw, 3 Phases, 120/208 Volts (60 Hz)	TM 5-6115-585-12
Trailer, Flat-bed, Gen. Purpose 5 Ton, 4 Wheel, XM1061E1	Operator, Unit, Intermediate, Direct Support and General Maintenance (including Repair Parts and Special Tools List), Trailer, Flatbed, 5-Ton, 4-Wheel, XMIO61E1	TM 9-2330-376-14&P
Water Tank, 3000 Gallon (Optional)	Operator's and Unit Maintenance Manual (Including RPSTL) Tank, Fabric, Self Supporting, 3000 Gallon Water	TM 5-5430-213-13&P
100 AMP, 50ft Power Supply Cable	Operator's, Unit and Direct Support Maintenance Manual for Distribution Illumination Systems, Electrical (DISE), and Power Distribution Illumination Systems, Electrical (PDISE) consisting of Electrical Feeder System M200, M200 A/P, M100, M100 A/P, M40, M40 A/P, M60, M60 A/P and Electrical Utility Assembly M46.	TM 9-6150-226-13

THEORY OF OPERATION

General. The M85 Series Field Laundries were designed for support of field hospital and reconstitutive operations. The design provides for the assembly of all necessary components needed for a batch laundry operation on an open 5-ton trailer that affords rough terrain transportability. The system operates on 208VAC, 3 Phase, 60 Hz power which is provided by an onboard 10kw generator. Hot water is provided by an M-85 Water Heater that is interconnected with the external water supply. The laundry operation includes a wash, extraction, and drying phase.

Washer. The front-loading washer is powered by an externally mounted motor and drive train. The washer can be controlled either automatically or manually and has a 60-pound (27 kg) capacity. In manual operation the wash time is variable up to 60 minutes. In the automatic mode two loads can be washed per hour. Automatic operation is accomplished by use of the washer control console that regulates all functions of the laundry cycle. The functions being controlled are the number of washes and rinses, water level, and the water temperature. Washer Formula Cards, used to operate the controller, are pre-punched with standard wash cycles. Blank Washer Formula Cards and a cardpunch provided can be used to program different washing cycles, as desired.

Extractor. The extractor uses centrifugal force to extract water from the wash load prior to the drying process. Its perforated drum spins at 1700 rpm and is powered by a 3-hp motor. The extractor control has a 10-minute variable timer and has a load capacity of 30 pounds (14 kg) dry weight.

Dryer. The front-loading dryer is powered by an externally mounted motor and drive train. The dryer has a capacity of 30 pounds (14 kg) per load. Operating controls provide for an adjustable running time of 15 minutes for each drying cycle. It can process approximately four loads per hour. The dryer uses a fuel fired air heater mounted onto the dryer to provide hot air for the drying operation. During operation, a flexible exhaust hose is attached to the dryer to channel away the hot air from the operators.

Water Heater. The M-85 Water Heater operation is explained in TM 10-4520-259-13&P. The washer can be operated using hot water provided by the water heater, or cold water, bypassing the water heater.

Water Pump. The portable, centrifugal-type water pump is mounted in a carrying frame. During use, it is placed near the water source and connected to M-85 Water Heater with a water hose and power cable. After the initial prime, the pump will deliver 18-20 gallons (63.82-73.14 liters) of water per minute at a 25-foot head loss. In the M85 transport configuration the pump is stored on the right front side of the trailer.

Air Compressor. The air compressor provides air pressure for the operation of the valves that control washer water intake, washer drain valves, and the water heater hot water supply. The adjustable range of compressed air is 20 to 100 psi (138 to 690 kPa).

Generator. The Laundry Unit operates on 60-Hertz, 3-phase, 208VAC power. This is supplied by a 10kw generator, mounted on the right-hand side of the trailer. The power supply is connected to a power distribution panel that distributes power to the components of the laundry unit. The panel includes the necessary circuit breakers for the safe operation of each major component of the laundry. Refer to TM 5-6115-585-12 for a general description and operating procedures for the generator.

Trailer. The trailer on which the M85 series laundries are mounted is a 5-ton, 4-wheel (tandem axle), flatbed type. Leveling jacks are on the four corners of the trailer to provide stability and level during operation of the Laundry Unit. Refer to TM 9-2330-376-14&P for general description and operating procedures.

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CHAPTER 2

OPERATOR INSTRUCTIONS
FOR
LAUNDRY UNIT, TRAILER MOUNTED

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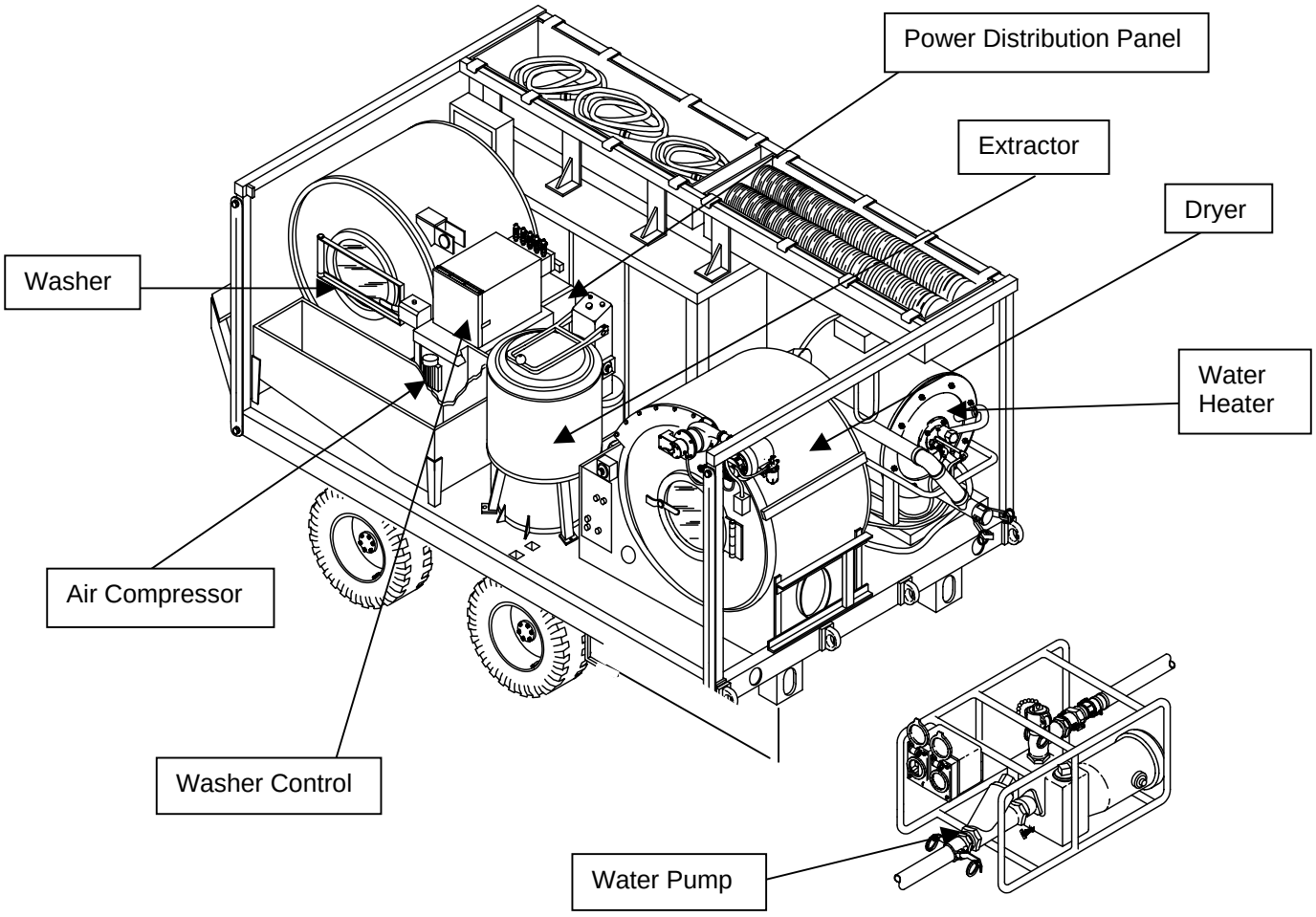
LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
CONTROLS AND INDICATORS

GENERAL

This work package contains information on the controls and indicators of the laundry. For information concerning the controls and indicators of the 5-ton trailer, 10kw generator, and M-85 Water Heater, consult the appropriate publication (Refer to work package 0002 00 or 0014 00). The illustration below shows the laundry components on which controls and indicators are found. Subsequent illustrations and tables explain the specific function of each control and indicator.

Controls/Indicators	Figure
Washer	1-3
Washer Formula Card	4
Dryer	5
Extractor	6
Water Pump	7
Power Distribution Panel	8
Air Compressor	9



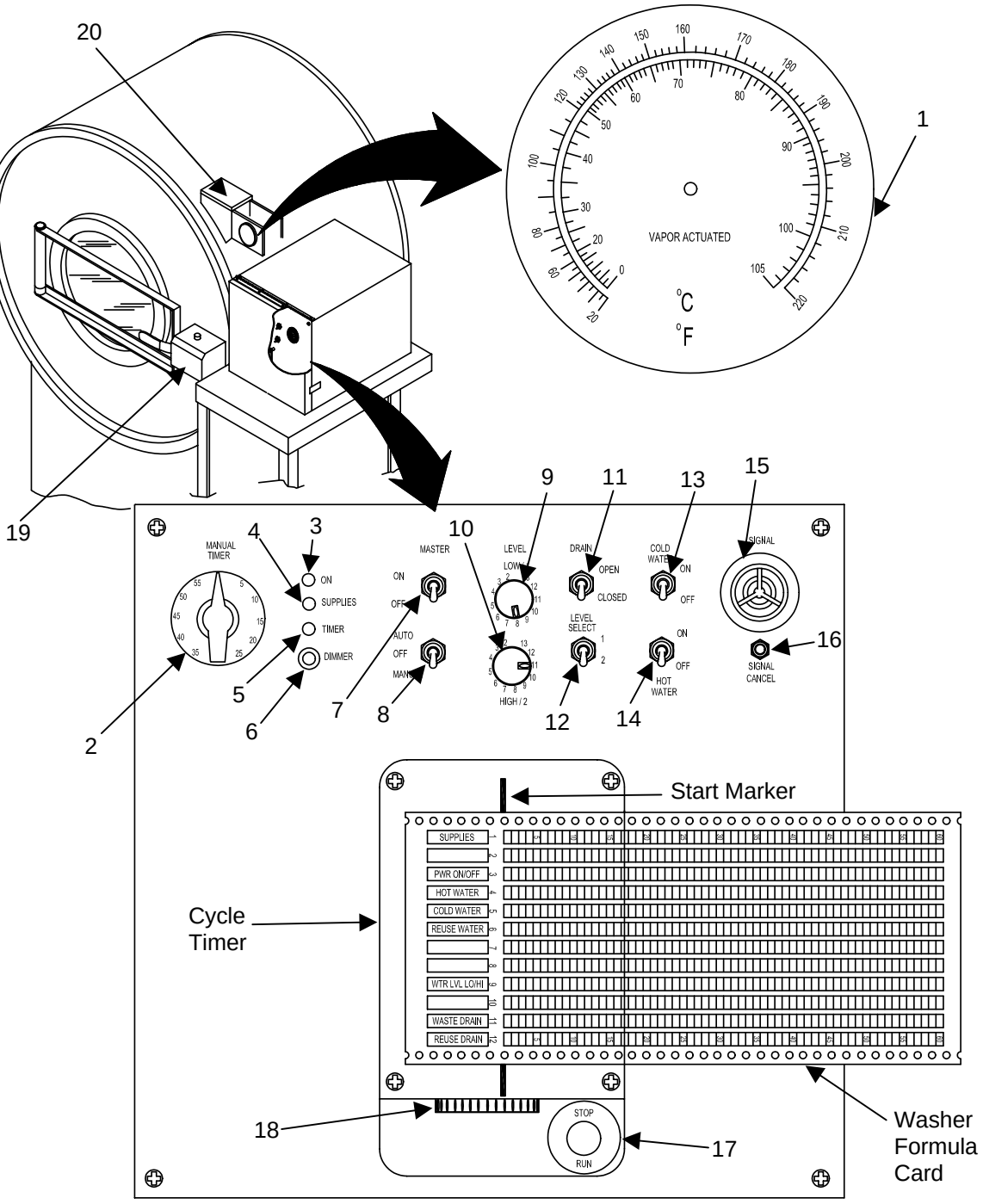


Figure 1. M85-200 Washer Controls and Indicators

M85-200 Model Laundry		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Temperature Gage	Indicates temperature of water coming from water heater.
2	MANUAL TIMER	Controls time (60 minutes) of operation during manual operation.
3	ON Indicator Light	Indicates machine is on.
4	SUPPLIES Indicator Light	In auto mode, indicates to operator that supplies are required.
5	TIMER Indicator Light	In manual mode, indicates time-out or supplies are needed.
6	DIMMER Switch	Provides control of brightness for ON/SUPPLIES/TIMER Indicator Lights.
7	MASTER ON/OFF Switch	Turns controller on/off.
8	AUTO/MANUAL /OFF Switch	Selects auto or manual operation, off position enables door unlock switch.
9	LEVEL LOW/1 Switch	Sets low level of water for automatic wash cycle or sets water level for manual when LEVEL SELECT is switched to 1.
10	LEVEL HIGH/2 Switch	Sets high level of water for automatic wash cycle or sets water level for manual when LEVEL SELECT is switched to 2.
11	DRAIN OPEN/CLOSED Switch	Opens and closes drain valve.
12	LEVEL SELECT 1 or 2 Switch	Enables LEVEL LOW/1switch or HIGH/2 switch to operate
13	COLD WATER ON/OFF Switch	Turns cold water valve on/off.
14	HOT WATER ON/OFF Switch	Turns hot water valve on/off.
15	Audible SIGNAL	Alerts operator that washer controls require attention.
16	SIGNAL CANCEL Switch	Cancels audible signal indicator.
17	RUN/STOP/Motor Switch	Engages/disengages auto mode drive and starts cycle timer.
18	Cylinder Control Wheel	Manually advances cylinder.
19	Door Unlock Switch	Unlocks washer door.
20	Soap Dispenser	Allows operator to add supplies during the washing cycle.

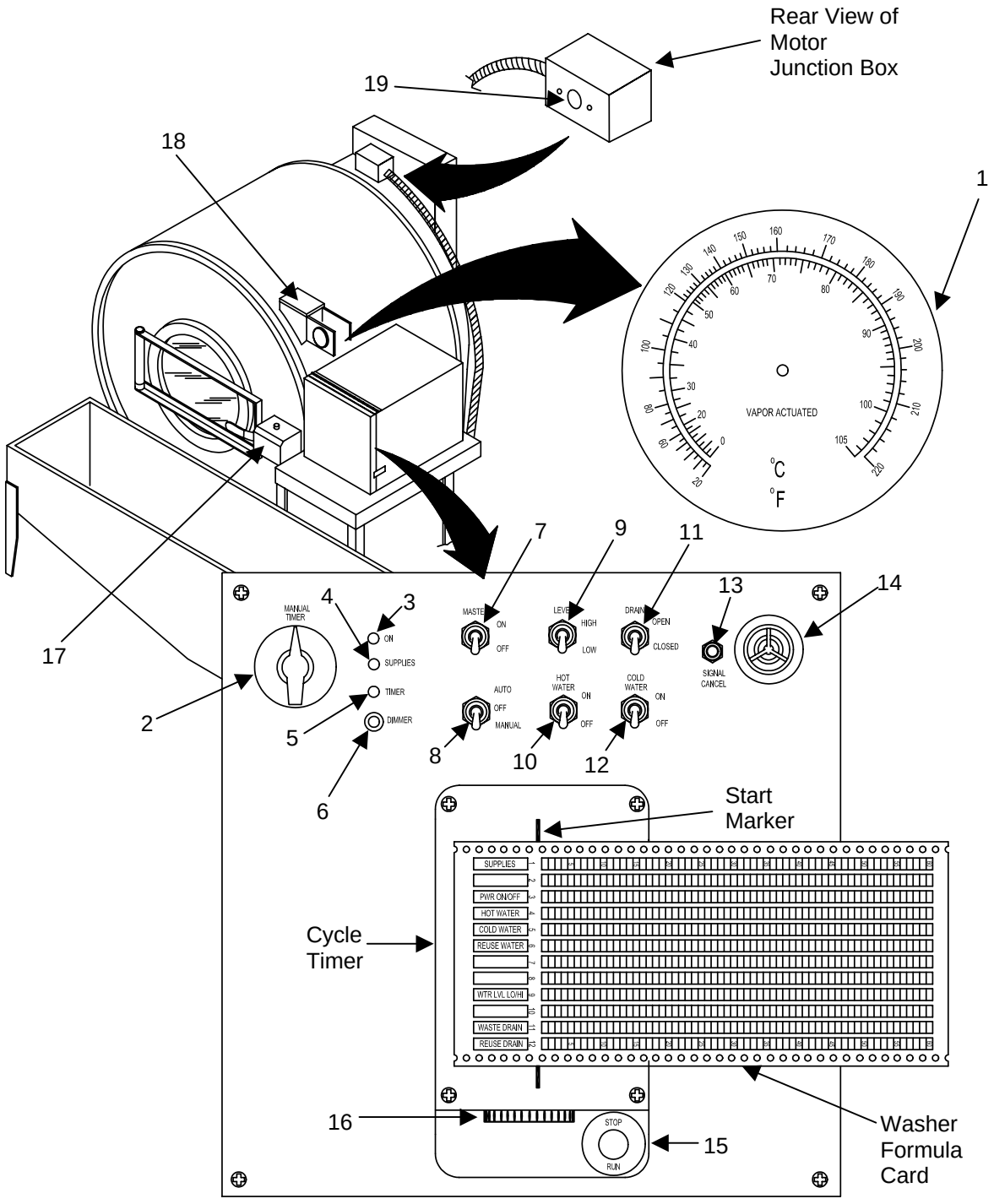


Figure 2. M85-100 Washer Controls and Indicators

M85-100 Model Laundry		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Temperature Gage	Indicates temperature of water coming from water heater.
2	MANUAL TIMER	Controls time of operation during manual operation.
3	ON Indicator Light	Indicates machine is on.
4	SUPPLIES Indicator Light	In auto mode, indicates to operator that supplies are required.
5	TIMER Indicator Light	In manual mode, indicates time-out or supplies are needed.
6	DIMMER Switch	Provides control of brightness for ON/SUPPLIES/TIMER Indicator Lights.
7	MASTER ON/OFF Switch	Turns controller on/off.
8	AUTO/MANUAL /OFF Switch	Selects auto or manual operation, off position enables door unlock switch.
9	WATER LEVEL Switch	Selects high and low water levels.
10	HOT WATER Switch	Turns hot water valve ON and OFF
11	DRAIN OPEN/CLOSED Switch	Opens and closes drain valve.
12	COLD WATER ON/OFF Switch	Turns cold water valve on/off.
13	SIGNAL CANCEL Switch	Cancels audible signal indicator.
14	SIGNAL	Alerts operator that attention is required at the washer controls.
15	RUN/STOP/Motor Switch	Engages/disengages auto mode drive and starts cycle timer.
16	Cylinder Control Wheel	Manually advances cylinder.
17	Door Unlock Switch	Unlocks washer door.
18	Soap Dispenser	Allows operator to add supplies during the washing cycle.
19	Reset Button (located on Motor Junction Box)	Resets motor circuit breaker.

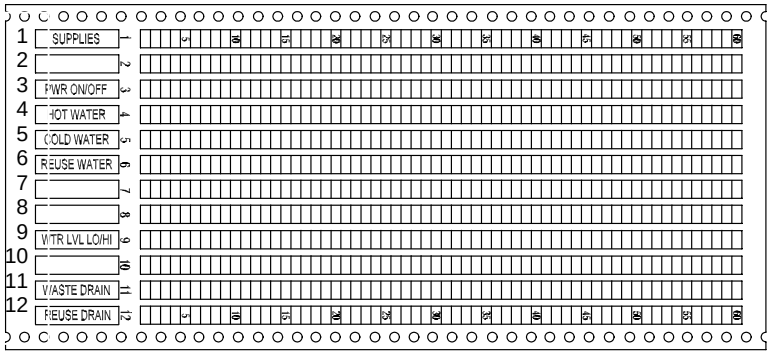


Figure 4. Washer Formula Card

M85-100 and 200 Washer Formula Card Controls and Indicators		
TRACK	**TITLE**	**FUNCTION**
1	SUPPLIES	Alerts operator to add supplies or that cycle is ending
2	Blank	
3	PWR ON/OFF	Stops machine at end of formula card
4	HOT WATER	Adds proper amount of hot water
5	COLD WATER	Adds proper amount of cold water
6	REUSE WATER	Adds proper amount of reuse water (Not in Use)
7	Blank	
8	Blank	
9	WTR LVL LO/HI	Selects one of two pre-select levels of water
10	Blank	
11	WASTE DRAIN	Opens waste drain
12	REUSE DRAIN	Opens reuse drain (Not in Use)

Dryer Controls and Indicators		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Fuel Pressure Gage	Indicates pressure of fuel to burner.
2	Shutter Air Intake	Controls amount of air to burner. a. Turned downward, increases air to burner. b. Turned upward, decreases air to burner.
3	Sensor Switch	Stops tumbler rotation when dryer door is opened.
4	ON/OFF Sequential Timer	Controls drying time.
5	STOP RESET Button	Stops blower motor and turns ignition off.
6	START Button	Starts blower motor and turns ignition on.
7	Timer Buzzer	Slow beeping tone alerts operator that cycle is complete.
8	Alarm Buzzer	Fast beeping tone alerts operator that a safety shutdown has occurred.
9	UV Scanner Indicator Light	Gives visual indication that a safety shutdown has occurred.
10	Burner Starter Motor Reset Button	Reset burner motor relays.
11	UV Scanner Flame Safeguard Control Reset Button	Closes fuel solenoid valve, stops spark for ignition, and sounds alarm buzzer when tripped.
12	Temperature Control	Controls temperature of hot air exhaust.
13	Thermometer	Indicates exhaust temperature of drying air tumbler.
14	Tumbler Burner Sight Glass	To observe flame inside the burner.
15	UV Scanner Flame Safeguard Control Eye	Initiates safety shutdown if flame inside burner goes out.
16	Air Nozzle	Allows operator to fine-tune air fuel mixture.
17	Globe Valve	Opens and closes fuel supply to burner.

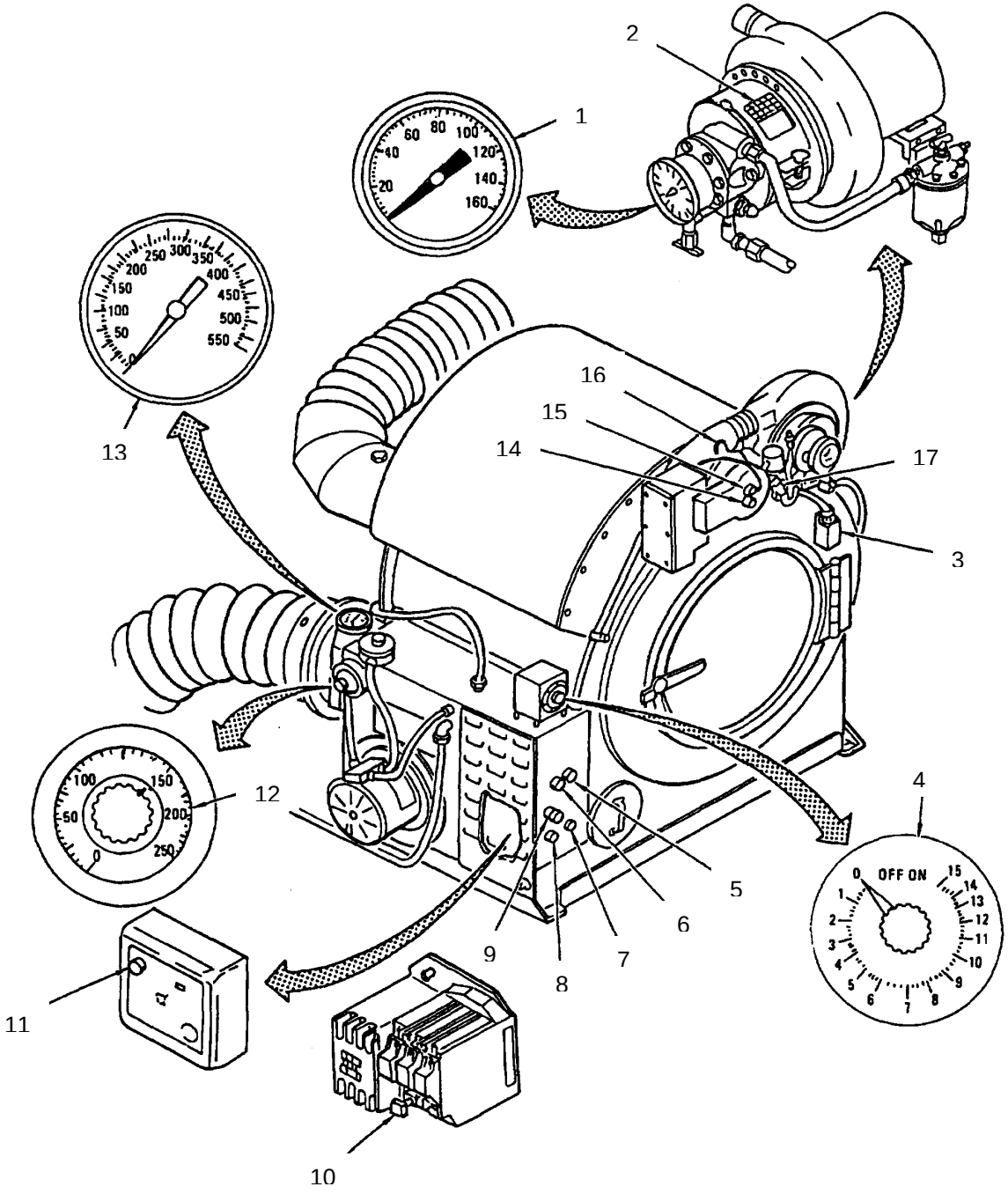
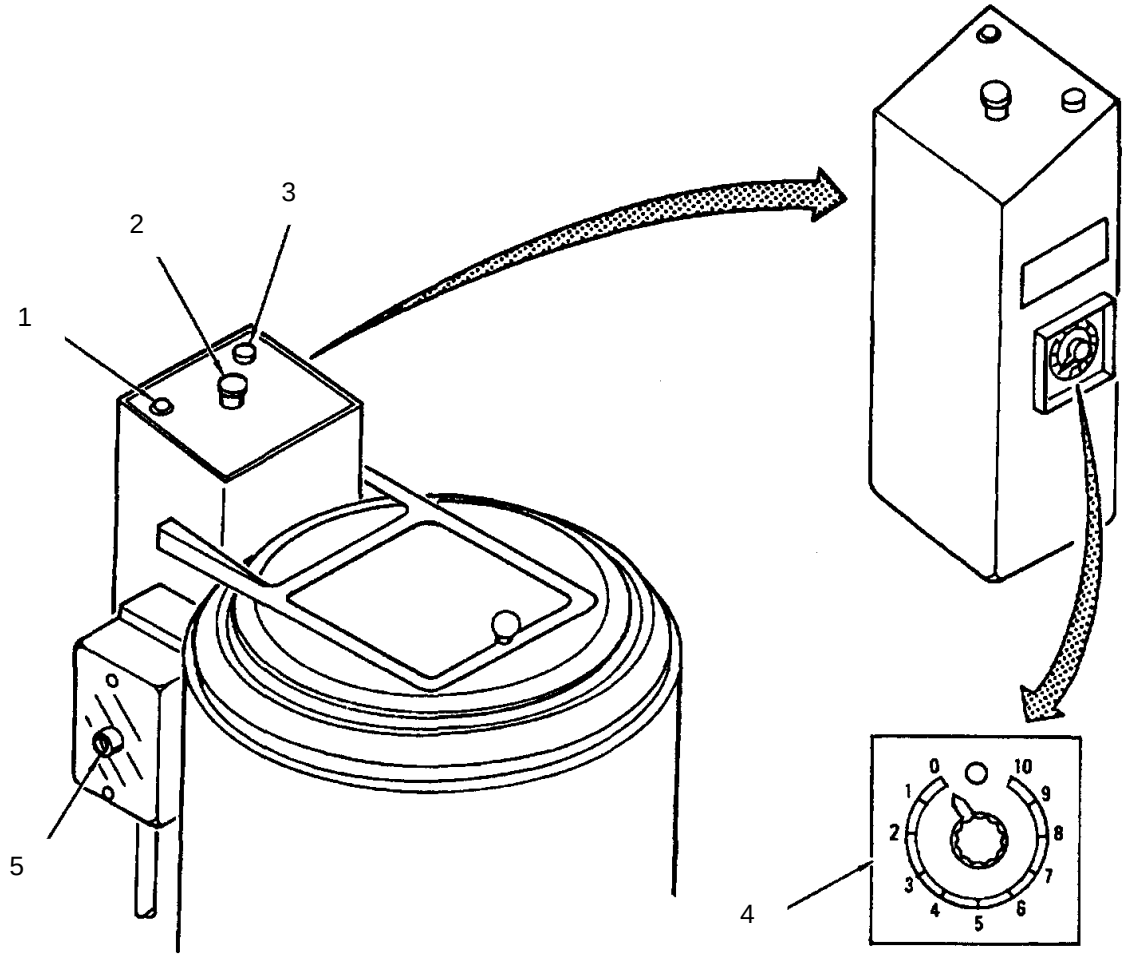
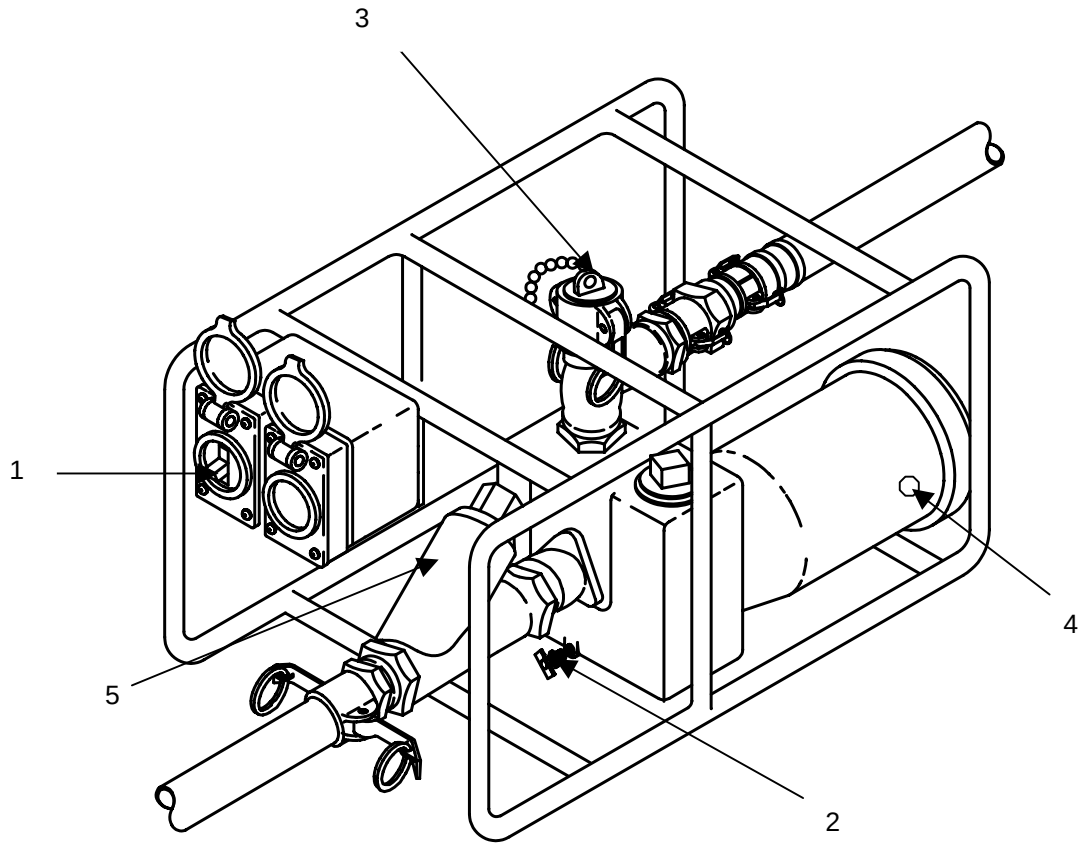


Figure 5. Dryer Controls and Indicators



Extractor Controls and Indicators		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	LID LOCKED Indicator Light	Light indicates that lid is locked in closed position. Turn indicator light clockwise for off, and counter-clockwise for on.
2	EMERGENCY STOP ONLY Button	Allows the operator to shut down the extractor.
3	PUSH TO START Button	Starts the extractor motor.
4	Timer Interval	Allows the operator to control extractor times, 0-10 minutes. Resets automatically. Has built in light and timer.
5	RESET Overload elay	Resets overload relay to motor.

Figure 6. Extractor Controls

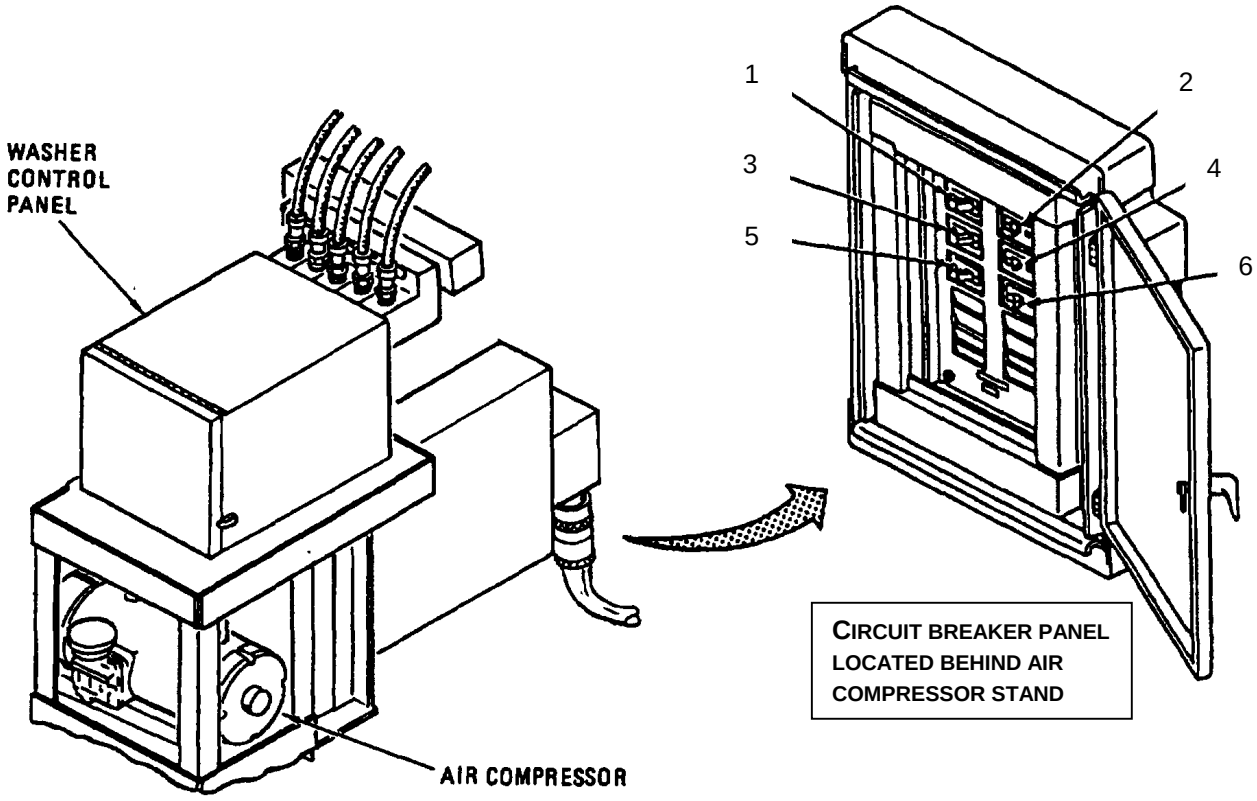


Water Pump Controls and Indicators		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Toggle Switch	Turns water pump on or off.
2	Drain Cock	Allows the operator to drain water from water pump.
3	Quick Disconnect Plug	Allows operator to prime pump.
4	Reset Button	Resets thermal overload protector.
5	Screen	Filters large debris from pump.

NOTE

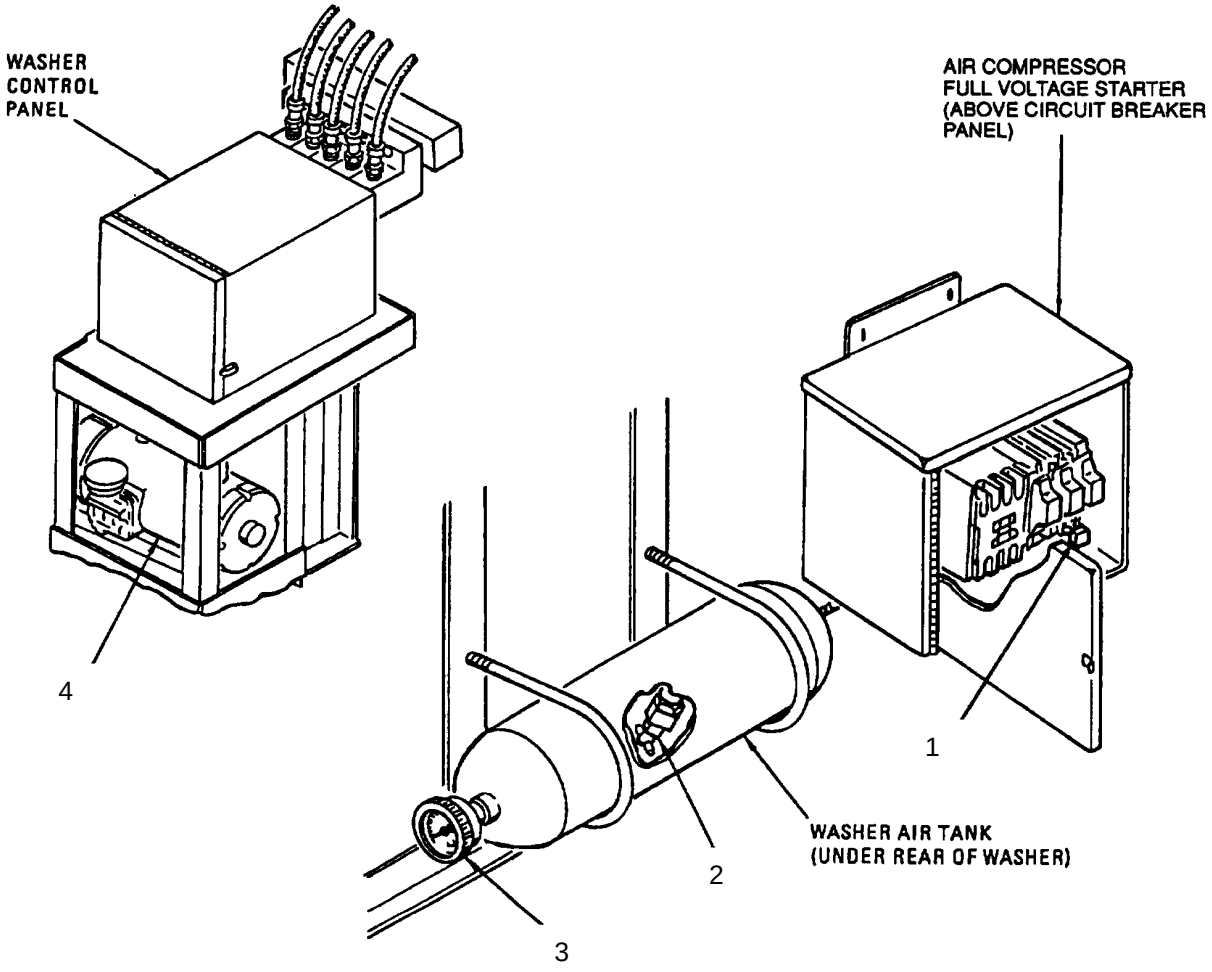
Some pumps are not equipped with a reset button.

Figure 7. Water Pump Controls



Power Distribution Panel Controls and Indicators		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Circuit Breaker	Main System Breaker (60AMP)
2	Circuit Breaker	Extractor Breaker (20AMP)
3	Circuit Breaker	Compressor Breaker (20AMP)
4	Circuit Breaker	Dryer Breaker (20AMP)
5	Circuit Breaker	M-85 Water Heater Breaker (20AMP)
6	Circuit Breaker	Washer Breaker (20AMP)

Figure 8. Power Distribution Panel Controls



Air Compressor Controls and Indicators		
KEY	**CONTROL AND INDICATOR**	**FUNCTION**
1	Full Voltage Starter Reset Button	Reset button connects electrical circuit to the air compressor from an overloaded condition.
2	Drain Cock	Allows operator to bleed water from washer air tank.
3	Pressure Dial Gage	Indicates pressure inside washer air tank (Part of Washer)
4	Air Compressor	Generates air for the system.

Figure 9. Air Compressor Controls

DECALS AND INSTRUCTION PLATES

The following decals and instruction plates are found on the M85 series laundries. For decals on the M-85 Water Heater, refer to TM 10-4520-259-13&P. For trailer decals refer to TM 9-2330-376-14&P. Generator decals are described in TM 5-6115-585-12.

The following decals are found on the Extractor:

DO NOT STEP

EXTRACTOR OPERATION

Place material evenly in drum, so that drum is in balance. Close cover.

Set Timer: 3 minutes for B.D.U.
4 minutes for cotton, wool
5 minutes for sleeping bags

Press start button (timer resets automatically after each cycle)

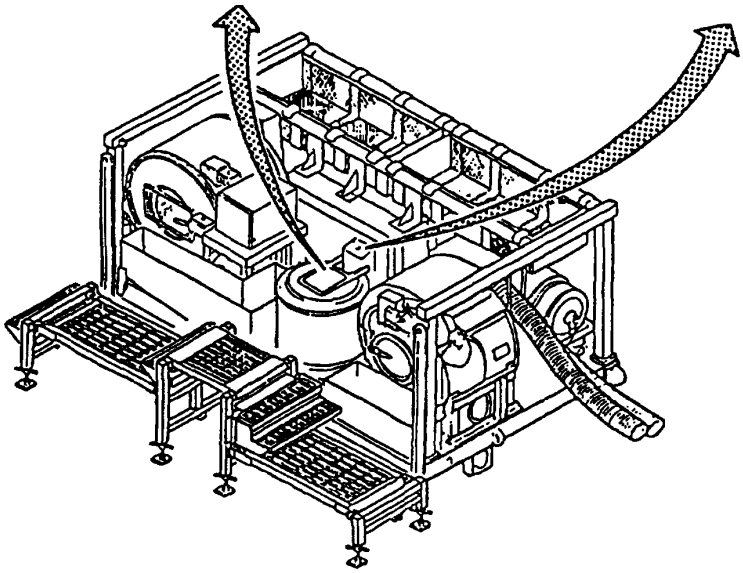
Lid locked

Push to Start

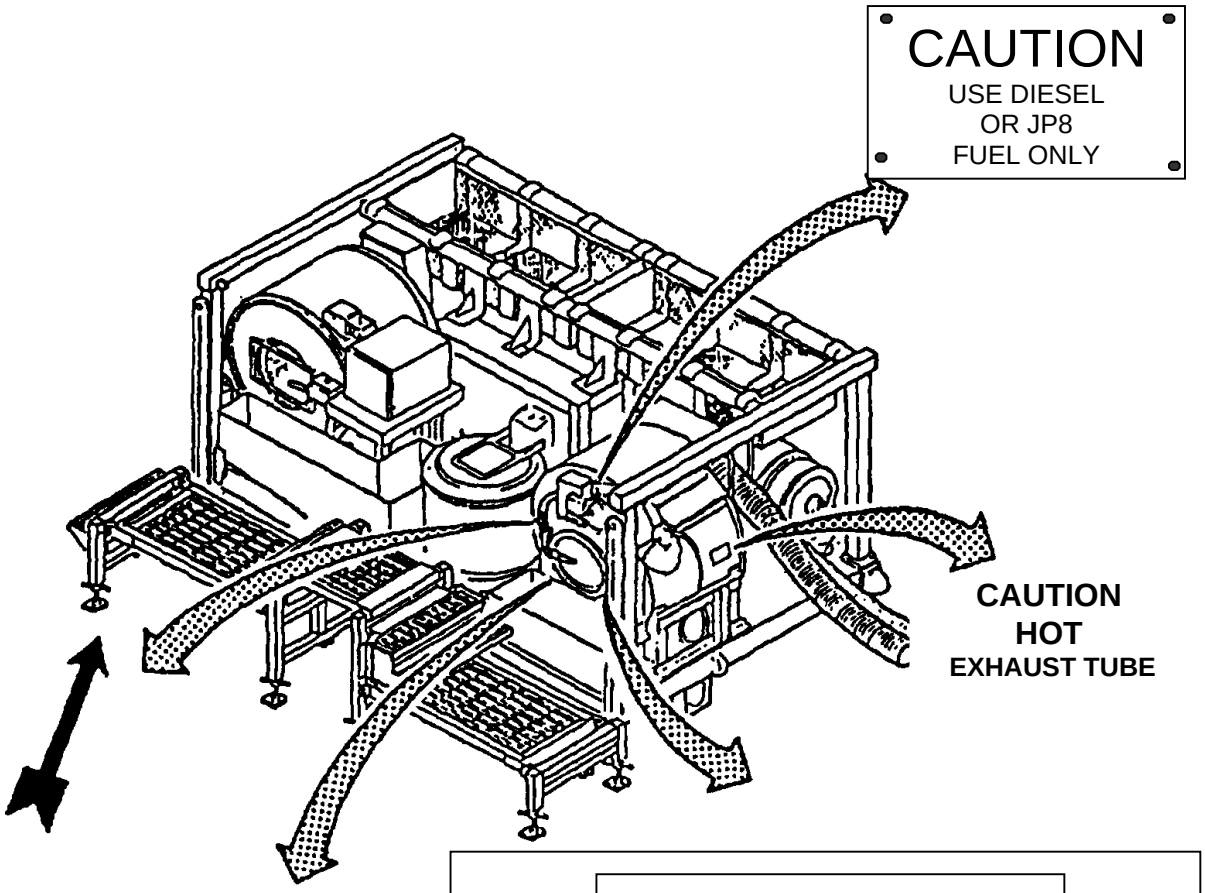
Emergency Stop Only
Push to Stop
To restart: pull button out
Adjust load
Push START button

IMPORTANT

Do not use your main disconnect switch to operate this machine



The following decals are found on the Dryer:



WARNING

AFTER SHUT DOWN IN FREEZING TEMPERATURE DRAIN ALL WATER FROM HOSES, PUMPS, AND TANKS. PERFORM PROCEDURE IN WORK PACKAGE 0008 OF TM 10-3510-222-10. LEAVE DRAIN VALVES OPEN. INSPECT LAUNDRY UNIT TO ENSURE ALL WATER HAS BEEN DRAINED

DRYER OPERATION

OPEN FUEL VALVE AND PRESS START BUTTON. FUEL PUMP IS OPERATIONAL WHEN FUEL PRESSURE GAUGE READS 100 TO 120 PSI. ALARM BUZZER WILL SOUND AND BLUE INDICATOR LIGHT WILL LIGHT IF FLAME SAFEGUARD CONTROL REQUIRES RESETTING. RESET FLAME SAFEGUARD CONTROL RESET BUTTON. ADJUST AIR SHUTTERS SO THAT NO SMOKE IS VISIBLE. BURNER WILL CYCLE ON AND OFF.

The following decals are found on the washer:

HIGH INTENSITY NOISE
HEARING PROTECTION
REQUIRED

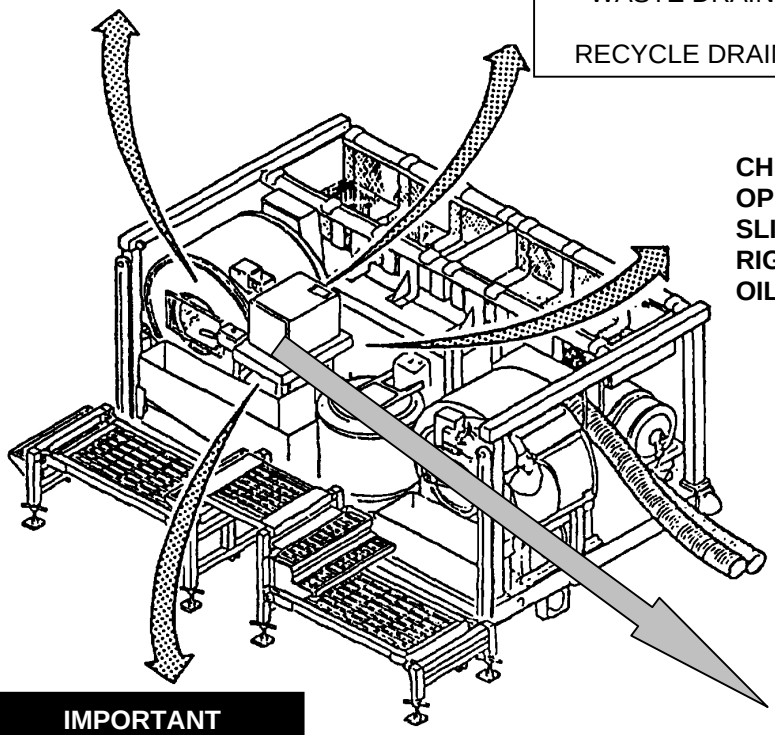
HOT INTAKE

COLD INTAKE

RECYCLE INTAKE

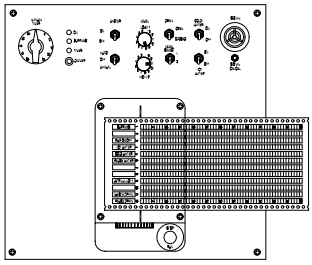
WASTE DRAIN

RECYCLE DRAIN

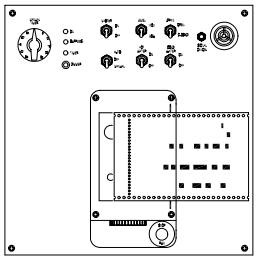


CHECK OIL BEFORE OPERATING GENERATOR. SLIDE SOUND PANEL TO RIGHT TO CHECK OR ADD OIL.

M85-200



M85-100



IMPORTANT
DO NOT LUBRICATE OR ALLOW OIL TO ENTER THIS UNIT

WIRE MOTOR FOR THIS

ROTATION

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
ASSEMBLY AND PREPARATION FOR USE

SITING REQUIREMENTS

This section outlines the siting requirements of the M-85 Laundry, and describes the preparation of its components. Refer to work package 0009 00 for operation under unusual weather or environmental conditions. The M85 series laundries were not designed for operation in sustained temperatures below 32^0 F. Under these conditions, the laundries should be set up in a tent or other suitable enclosure.

At least two people are required to move and unload laundry components from the trailer. Read all warnings and cautions within this section and follow procedures outlined herein to ensure safe operation of the laundry and associated equipment.

SITE SELECTION

The laundry unit site will usually be determined by the availability of a water source and a wastewater disposal area. In addition, vehicular access is required for the towing vehicle and re-supply of water and JP-8 diesel fuel drums as well as possible evacuation of wastewater.

Select a site within the designated area that has good drainage, is relatively level, and free of obstacles. Position the laundry unit trailer so that freshwater and wastewater connections are closest to the water supply and wastewater disposal connection/area. Consider the length of the external water supply and drain hoses as well as power supply cables shown below, before placing the laundry in its final position.

Power Distribution Cable, Water Pump to Water Heater, 25'
Suction Strainer to Water Pump, 1 ½" dia, 25'
Water Pump to Water Heater, 1 ½" dia, 25'
Water Bin to Drain Field, 1 ½" dia, 25'
Washer Drain to Drain Field, 2 ½", 25'

When the trailer is in the designated position, set the parking levers, tower the trailer supports, and unhitch towing vehicle. If necessary, dig holes or block wheels to ensure the trailer is level. Refer to TM 9-2330-376-14&P.

LOWERING AND RAISING LANDING GEAR

CAUTION

Lower and raise all leveling jacks in increments. Lowering and raising one leveling jack leg without lowering and raising the others can damage trailer.

1. Lowering.

CAUTION

Trailer must be uncoupled from towing vehicle before using leveling Jacks to level trailer. Failure to follow this caution may result in damage to leveling jacks.

a. Pull swivel pin assembly (1) and allow leveling jack leg (5) to slowly swing down until swivel pin assembly "clicks" into locked position.

b. Remove handcrank (2) from handcrank latch (3) and place on gearshaft (6).

c. Rotate handcrank (2) clockwise to lower leveling jack leg (5).

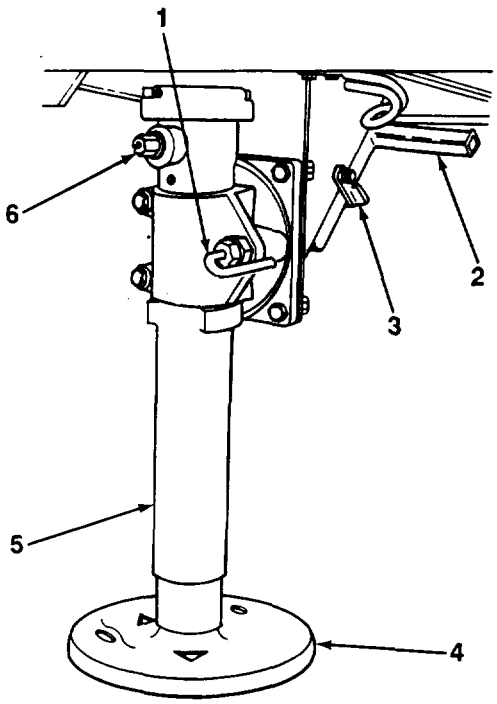
d. Continue lowering leveling jack leg (5) until trailer is level or desired effect is achieved.

2. **Raising.**

a. Rotate handcrank (2) counterclockwise to raise shoe (4) completely off ground.

b. Remove handcrank (2) from gearshaft (6) and stow in handcrank latch (3).

c. Release swivel assembly (1) and swing leveling jack leg (5) into travel position until swivel pin assembly “clicks” into locked position.



NOTE

Ensure that all 4 landing legs are down and locked. Ensure trailer is level and wheels are chocked.

ASSEMBLY AND PREPARATION FOR USE

During the assembly, operation, and shutdown of the M-85 series laundries you may have to refer at times to TM 5-6115-585-12 for generator operation, TM 10-4520-259-13&P for water heater operation, TM 5-5430-227-12&P for operation of the 3000 Gallon Fabric water tank (if used), and TM 9-2330-376-14&P on trailer data. You should have these publications available before assembling and setting up your laundry.

WARNING

The laundry components are heavy. To avoid injuries, two persons are required to unload, move and position components.

Components are mounted or stored on the trailer for shipment and storage. During operation, some components are removed from the trailer. The setup instructions that follow include steps for unpacking and positioning components. These should be unpacked only when the laundry is being operated or when maintenance is needed. Figure 1 shows the laundry in the shipping and storage configuration.

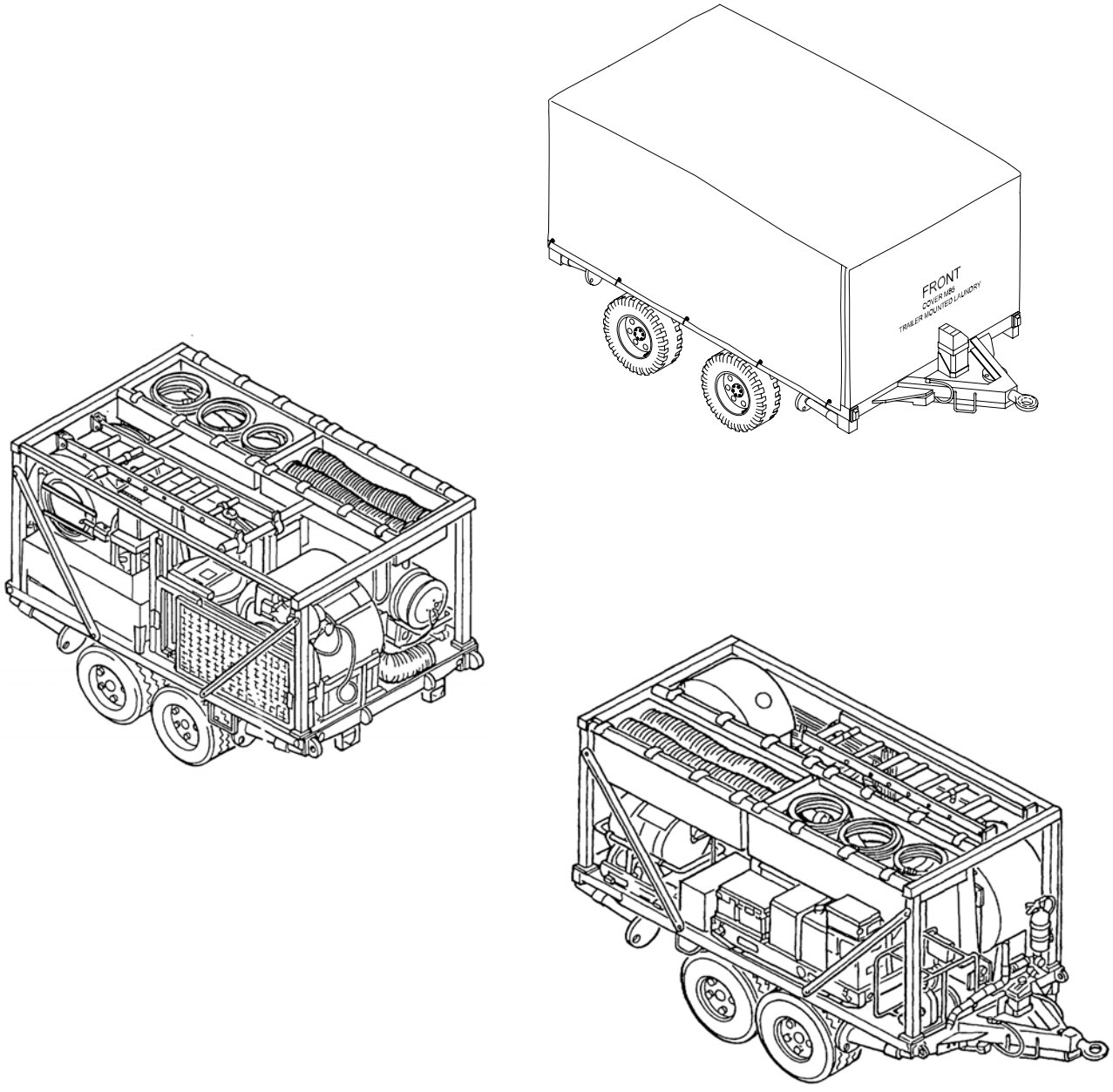


Figure 1. Laundry Unit in Shipping or Storage Configuration

Removing Tarpaulin

1. Remove the tarpaulin by unhooking the fibrous rope (1) securing the tarpaulin to the trailer bed.

2. Undo the pile fastener tape (2) on the weather flap (3) at one of the corners. The tarpaulin is laced the same way at each of the corners. Unlace one corner at a time.

3. Remove half-hitch knot (4) and undo the lacing on all four corners as shown.

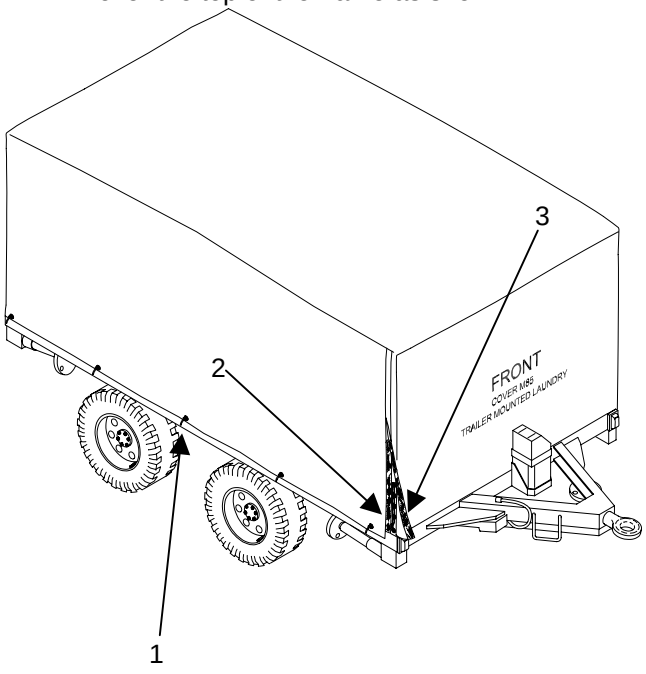
4. After all four corners are open, drain any accumulated water as shown (5).

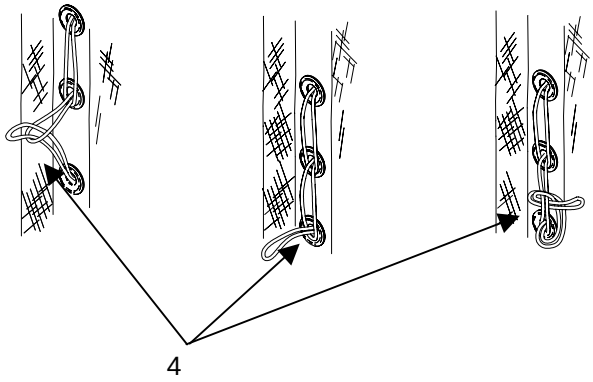
5. Refer to the tarpaulin folding diagram that follows and fold the tarpaulin by folding the left side so that the bottom edge of the side falls in the center of the tarpaulin. Fold the right side in the same fashion. Fold the front (labelled) up and onto the top of the tarpaulin followed by the back side. Fold the left side lengthwise so that the edge falls in the center. Do the same for the right side. Roll the folded tarpaulin up from back to front. Store rolled tarpaulin in basket (6) after contents have been removed.

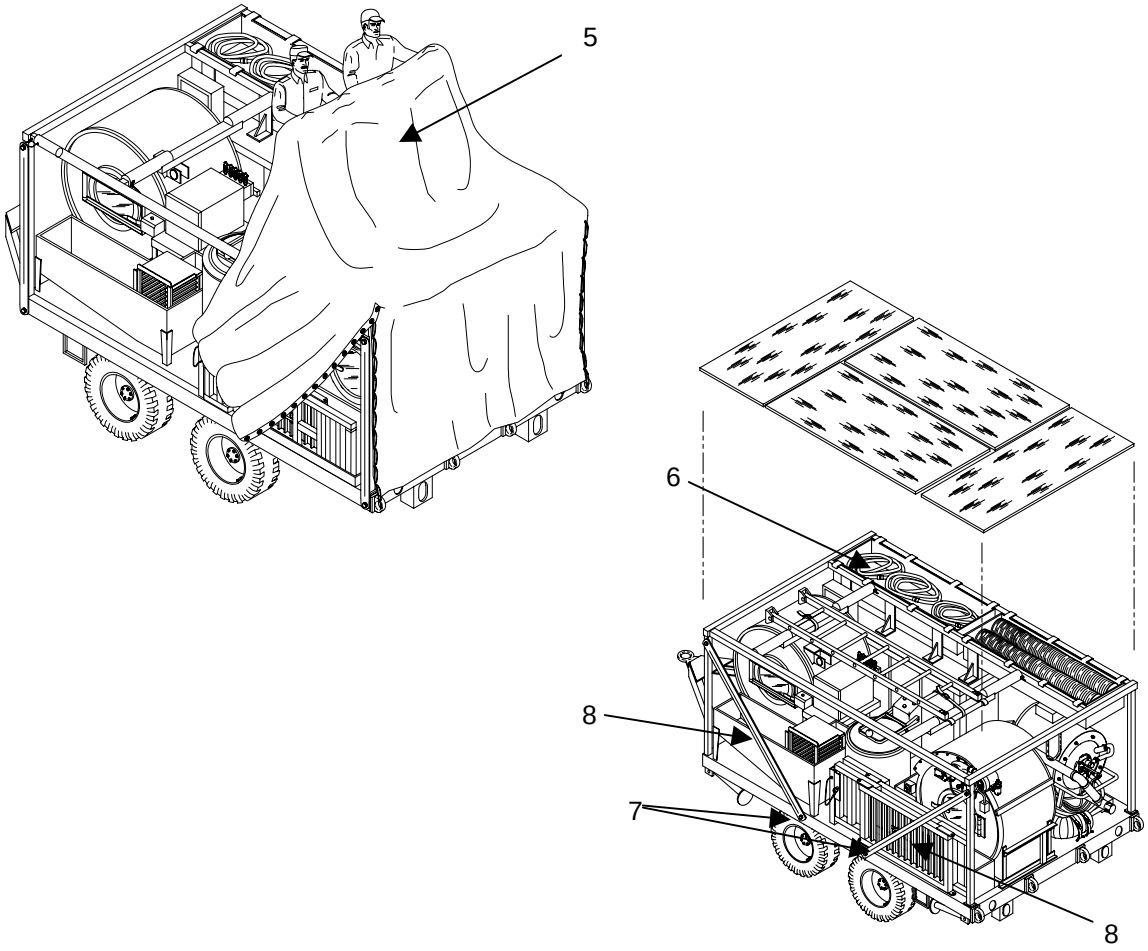
6. Remove bottom bolts, washers, and nuts (7) from tarpaulin support frames (8) on the street side of the Laundry Unit. Rotate tarpaulin support frames down. Store hardware (6) in toolbox.

NOTE

To prevent sagging of the tarpaulin caused by accumulated rainwater, plywood sheets may be laid over the top of the frame as shown.



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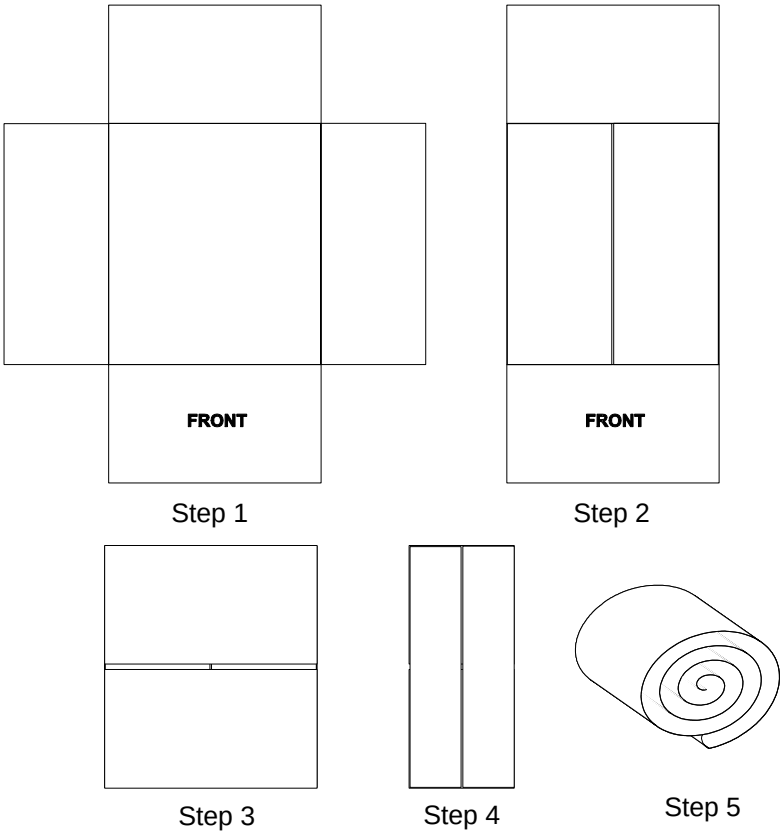


Tarpaulin Folding Diagram

Installing Work Platform

WARNING

Installing the work platform requires two people to lift its components. Failure to observe proper lifting procedures may result in serious injury to personnel.

1. Remove locking pin (1) from workstand upright storage support (2).
2. Remove upright storage support (2) and store under wet washer bin (3).
3. Remove short clamp assembly (4) and store in the toolbox located under the dryer (5).
4. Remove long clamp assembly (7) and store it in toolbox.
5. Slide washer platform (6) on trailer bed toward front of trailer.
6. Lift washer platform (6) off the trailer and place it on the ground on its side.

7. Remove short platform (8) from trailer.

8. Remove locking pin (1) from workstand upright storage support (2).

9. Remove upright storage support (2) and store under wet washer bin (3).

10. Lift the dryer platform (9) off the trailer and place it on the ground on its side.

11. Remove quick release pins (10) from platform assemblies. Adjust washer/dryer platform braces (11) and re-insert quick release pins (10) into holes.

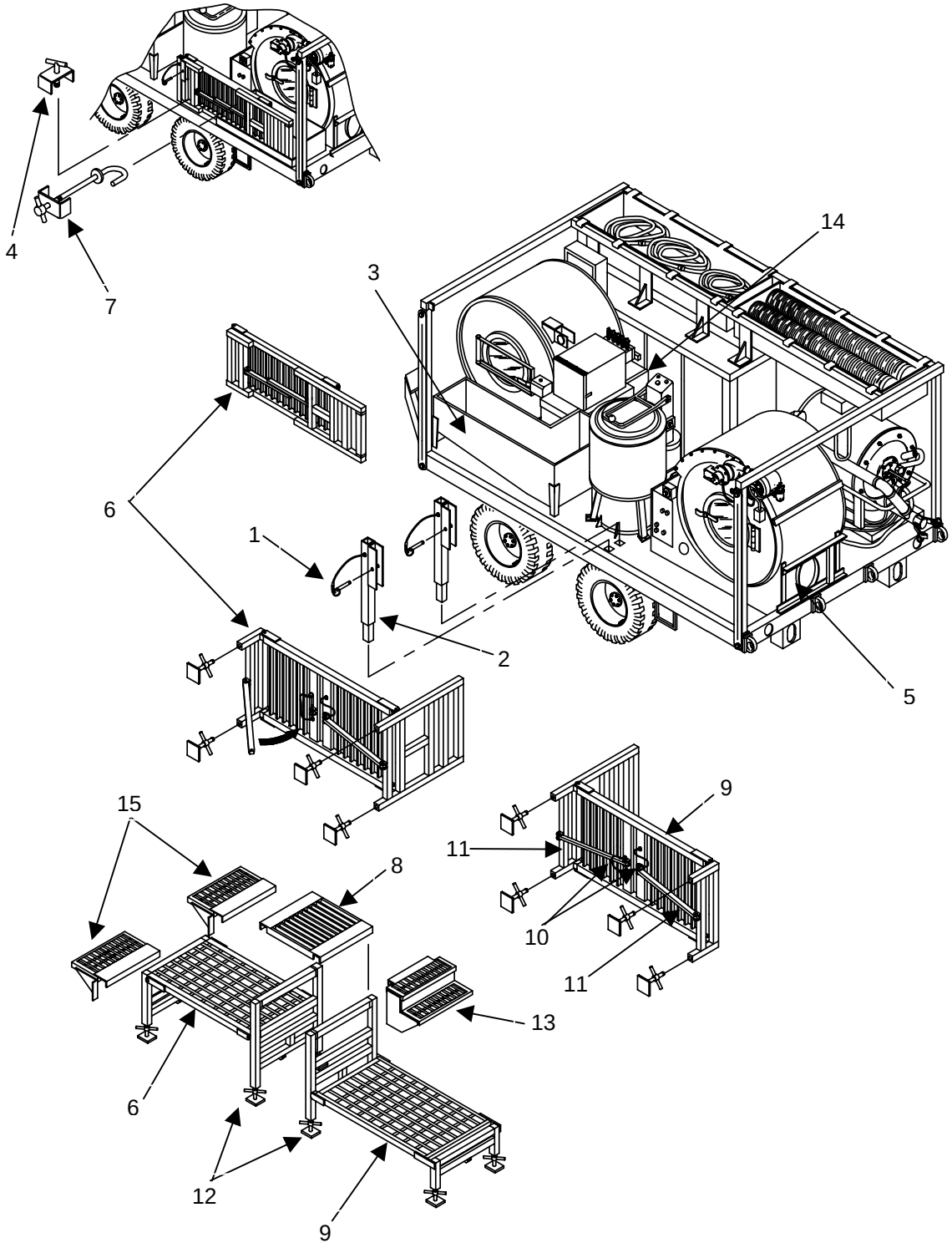
12. Position washer platform (6) and dryer platform (9) upright next to the trailer in front of the washer and dryer, respectively.

13. Install the short platform (8) between the washer platform (6) and dryer platform (9).

14. Adjust platform level and brace platform feet with platform footings (12) in soft ground, as needed.

15. Remove two-step maintenance platform (13), in front of circuit breaker panel (14), and install on dryer platform (9).

16. Locate and remove the one-step stairs (15) from the wet washer bin and install on the washer platform (6).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Install Ladder and Remove Street Side Beam.

CAUTION

Do not throw the ladder onto the ground. Use two persons to lift the ladder and position it as specified. Rough handling will damage the ladder.

1. Release two tiedown straps (1) holding ladder (2) to the struts (3) and remove ladder.

2. Position the ladder (2) on the curbside beam (4) as needed.

3. Remove two locking pins (5) from each of the two struts (3). Remove struts and set struts underneath trailer.

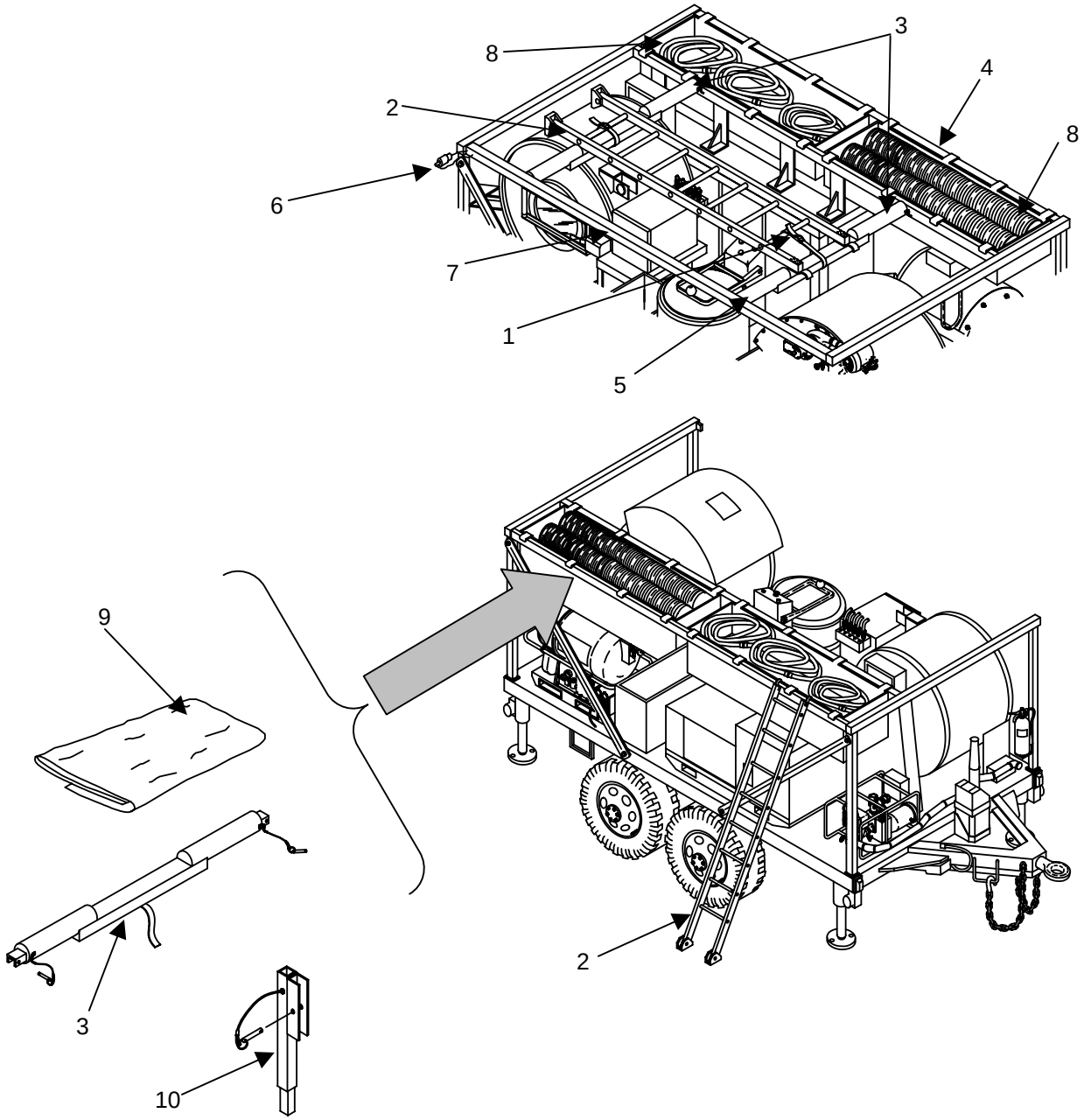
WARNING

Two personnel are required to remove the street side beam. Serious injury may result otherwise.

4. Remove two locking pins (6) from street side beam (7) and remove beam. Store street side beam underneath trailer.

5. Remove contents from baskets (8).

6. Store tarpaulin (9) two struts (3) and workstand upright storage supports (10) in baskets.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Connecting and Disconnecting Quick Disconnect (QD) Couplings.

CAUTION

To prevent damage to QD couplings, avoid getting dirt, sand and debris on mating surfaces.

1. To remove a QD cap (1) from a QD male coupling half (2), open locking arms (3) on QD cap and lift the cap off the coupling.

2. When connecting two QD coupling halves, make sure mating surfaces are clean and inspect gasket for cleanliness and for presence of cuts and damage.

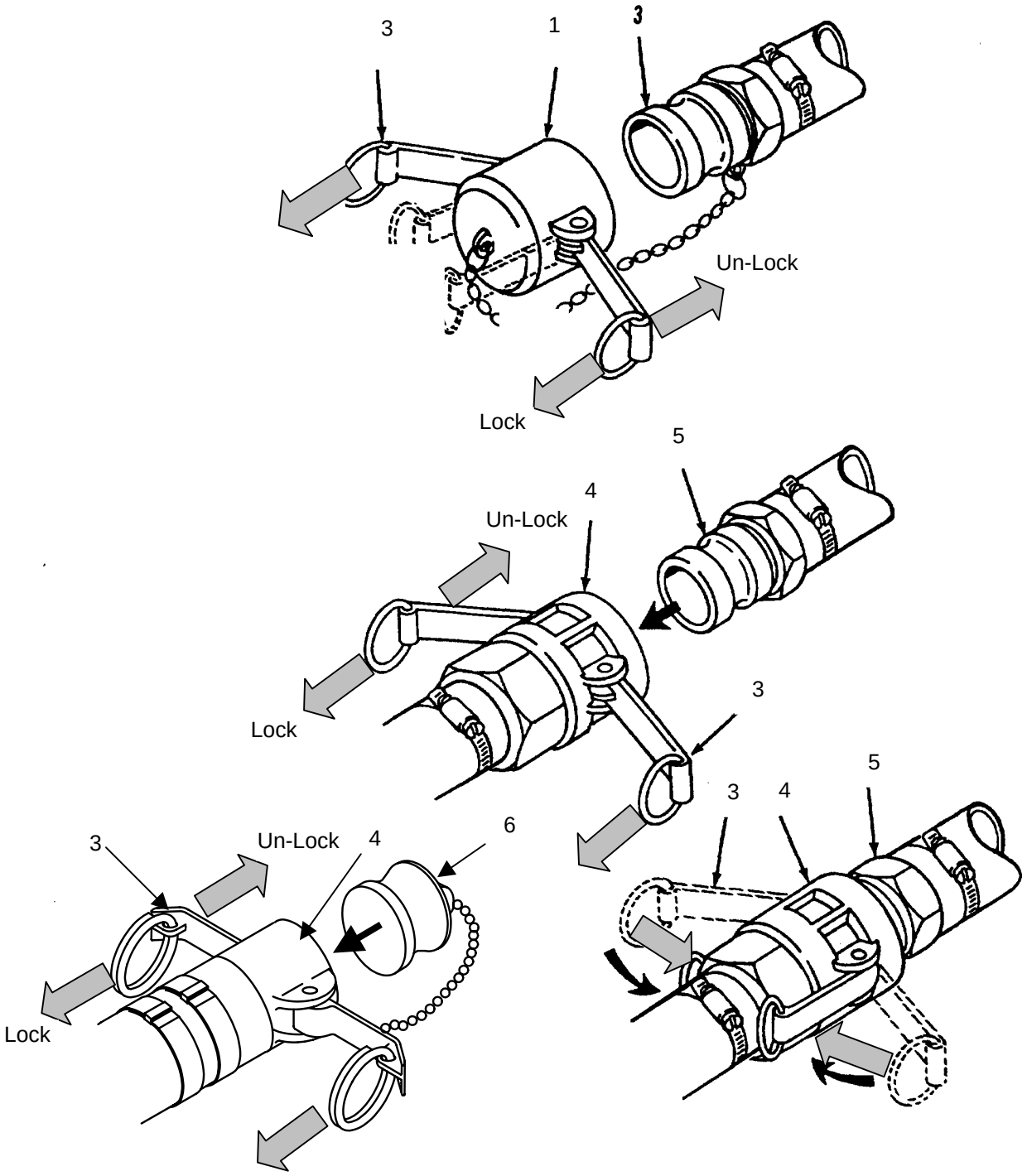
3. Open locking arms (3) of female QD coupling half (4).

4. Position QD female coupling half (4) on QD male coupling half (5 and hold in place.

5. Close both locking arms of the QD female coupling at the same time until both arms are closed against the body of the QD female coupling half (4).

6. Pull on QD female coupling half (4) to make sure that QD coupling is connected properly.

7. To remove a QD plug (6 from a QD female coupling half (4), open locking arms (3) on QD plug and pull the plug out of the coupling.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Connecting the Water Supply

1. To connect the water supply requires the following components:

Water Pump
Water Hose, 25', 1 ½" dia (2 each)
Water Hose, 8', 1 ½" dia
Power Distribution Cable
Suction Strainer
3,000 Gallon Tank (If used)

2. Remove the 2 bolts (1) from the right and left angle tie down (2) holding the water pump (3) to the trailer bed, and remove the tiedowns. Store tiedowns in overhead bin.

WARNING

The water pump is heavy. To avoid injuries, two persons are required to unload, move and position the pump.

3. Lift water pump (3) off the trailer and locate it no more than 20' from the intended water source.

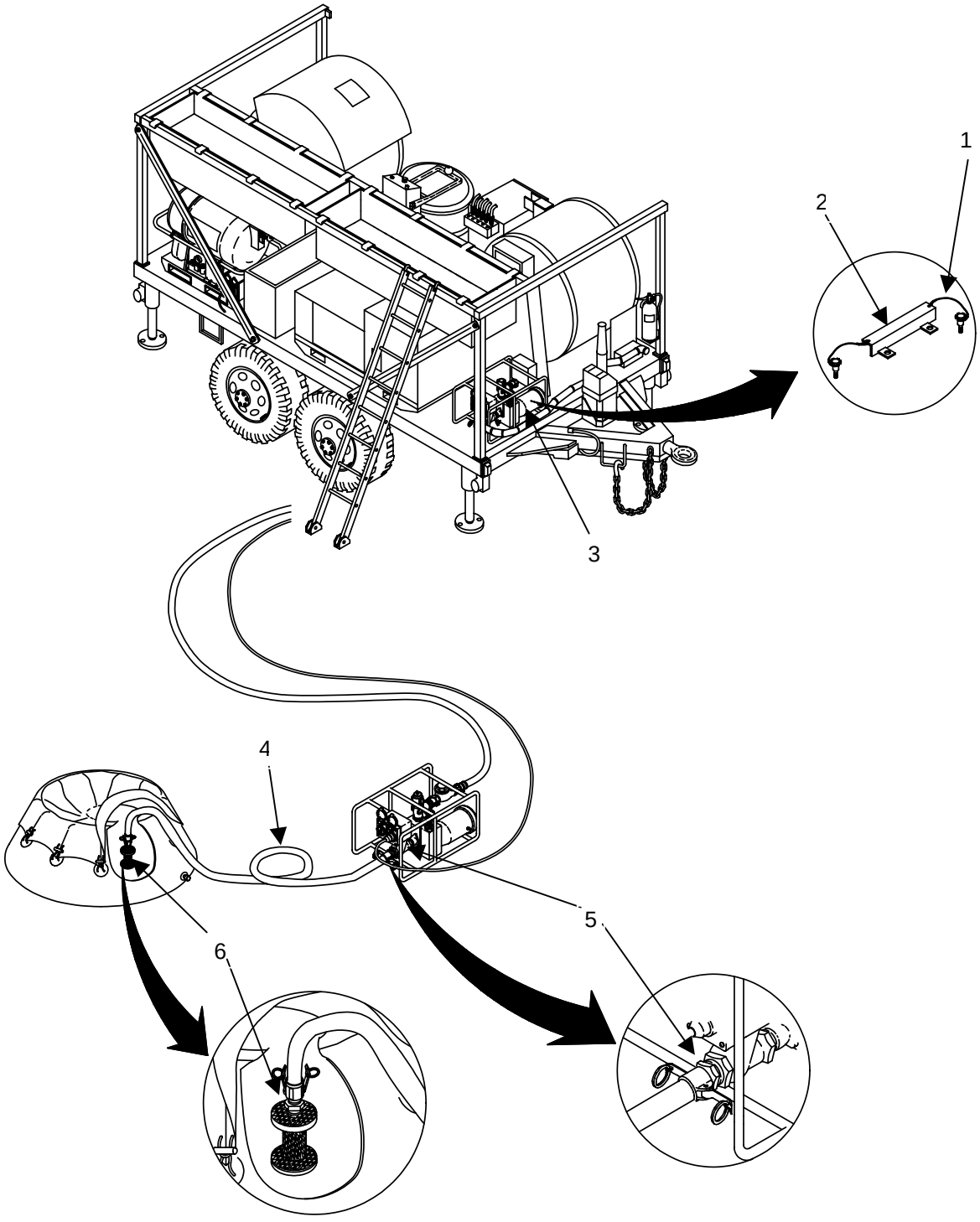
4. If a 3,000 Gallon Tank is being used for water storage, erect the tank as described in TM 5-5430-227-12&P.

WARNING

Hose clamps on water hoses can have sharp edges. Be careful when handling hoses.

5. Connect the QD female coupling of a 25', 1 ½" dia water hose (4) to the water pump input QD male coupling (5). Connect suction strainer (6) to the other end of this hose, and place it into the water source.

6. The suction strainer should not be resting at the bottom of the water source. If a 3000 Gallon Tank is used the strainer should be inserted through the tank opening on top and suspended about half way into the tank. When an open water source is used the strainer should be suspended from a support made of available materials such as tree branches or saplings.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WARNING

Ensure that water hoses do not touch or cross other water hoses, exhaust ducts, power cables, or fuel lines. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

7. Connect the QD female coupling (1) of a 25', 1 ½" dia water hose to the water pump output QD male coupling. Connect the other female coupling to the M-85 Water Heater input QD male coupling (2). Route the hose as shown.

8. Ensure the cold water hose (3) is properly connected to the M-85 Water Heater intake Tee (4) (On some models this may be a permanently installed pipe assembly)

9. Ensure drain valve (5) on M-85 Water Heater is closed. (Refer to TM 10-4520-259-13&P.) Turn clockwise to close.

10. Ensure electrical connector switch on M-85 Water Heater (6) is OFF (Refer to TM 10-4520-259-13&P).

11. Ensure drain valve (7) on water pump is closed. Turn clockwise to close.

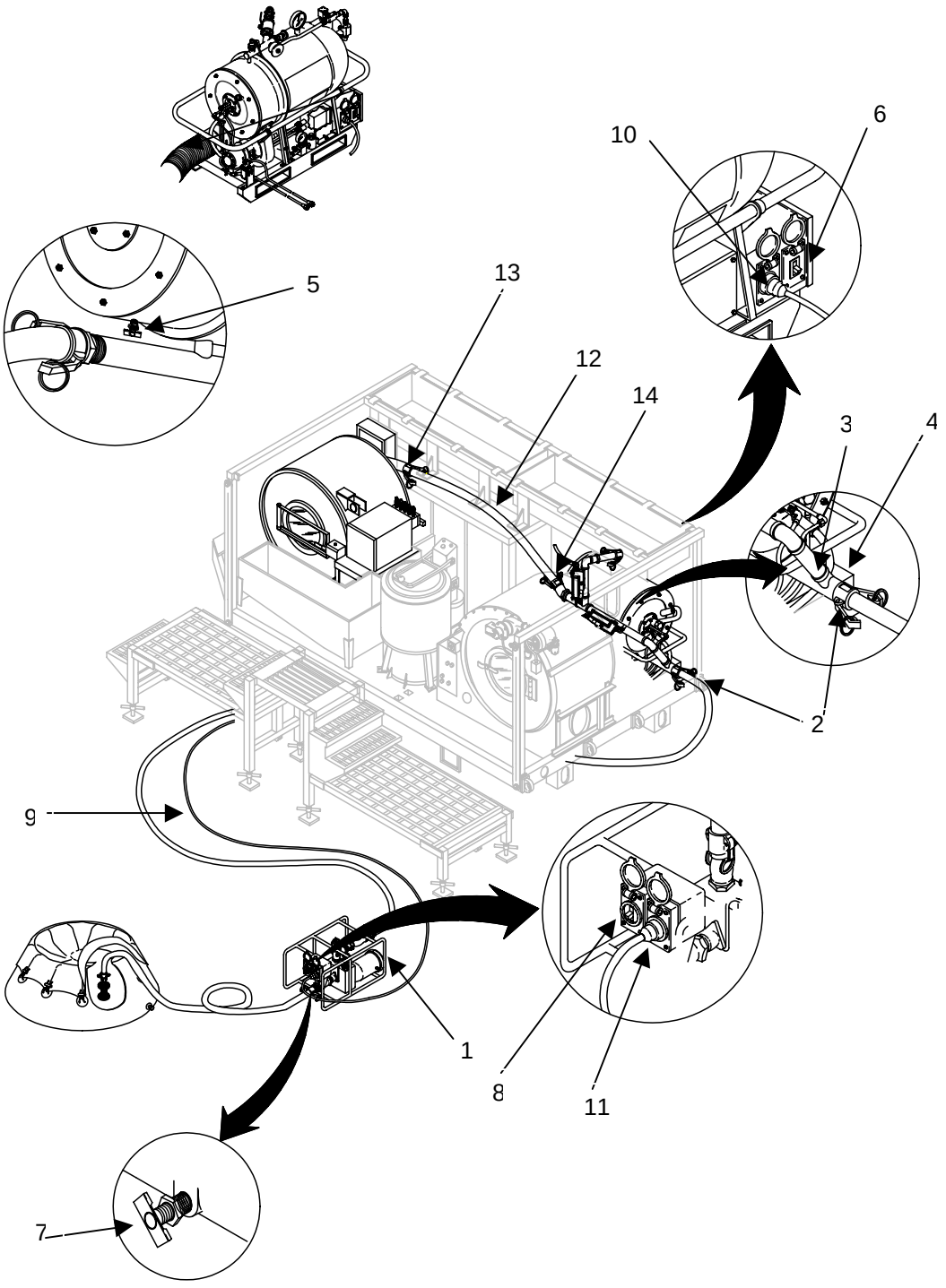
12. Ensure water pump toggle switch (8) is OFF.

WARNING

Ensure that the power distribution cable is not frayed or damaged and does not lie in standing water. Serious injuries or electrocution could result.

13. Connect the water pump power distribution cable (9) between water heater electrical receptacle (10) and the water pump electrical receptacle (11).

14. Connect the QD female couplings (12 and 13) of an 8', 1 ½" dia water hose (12) to the washer input QD male coupling (13), and the M-85 Water Heater output QD male coupling (14), respectively. Route the hose as shown.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Connecting Wastewater Hoses

WARNING

Keep drain hoses well separated from freshwater hoses to avoid water contamination and serious personnel sickness.

WARNING

Ensure that drain hoses do not touch or cross other water hoses, exhaust ducts, power cables, or fuel lines. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

NOTE

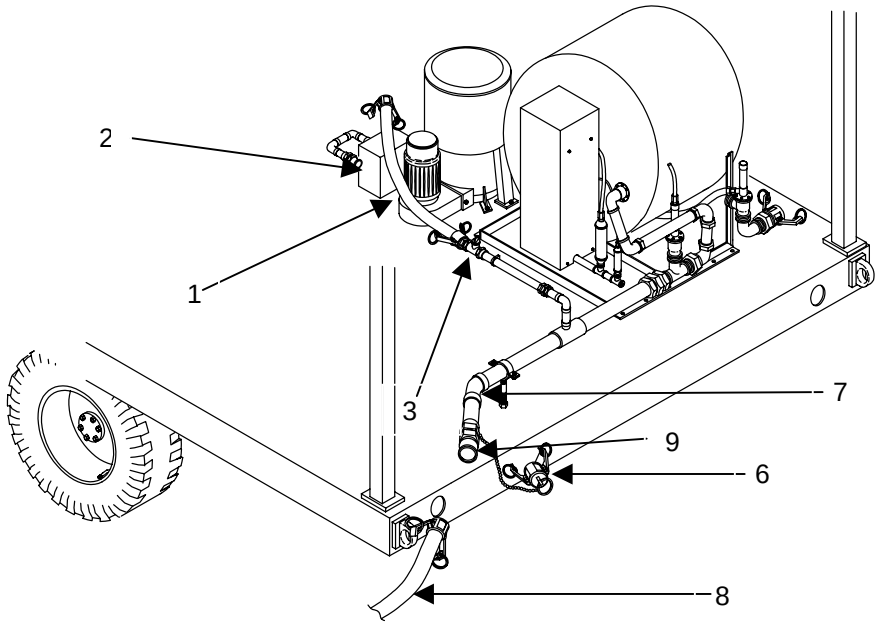
Connect hoses as described under 'Connecting and Disconnecting Quick Disconnect (QD) Couplings' in this work package.

1. Connect 40', 1 ½" dia drain hose (1) to the extractor drain pipe assembly QD male coupling (2) and washer drain pipe QD male coupling (3).

2. Connect 25', 1-1/2" dia drain hose (4) to wet wash bin QD male coupling (5). Route the hose to the designated drain field or holding area/tank.

3. Remove QD cap (6) from QD male coupling on washer/extractor drain assembly (7).

4. Connect 25', 2-1/2" dia drain hose (8) to washer/extractor drain assembly QD male coupling (9). Route the drain hose to the designated drain field or holding area/tank.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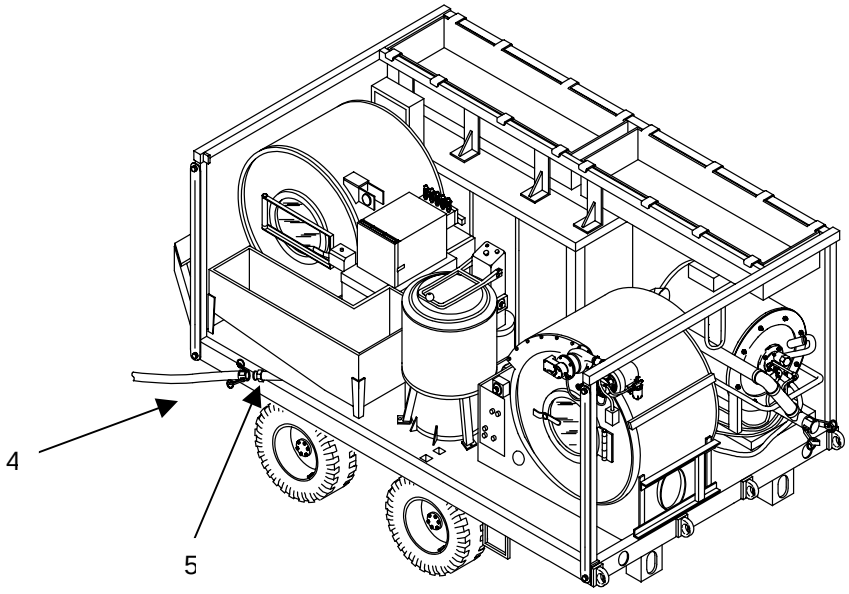
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Connecting Power Cables

WARNING

The laundry unit operates on 208 VAC power. Follow the procedures closely when connecting the power cables. High voltage cannot be seen but it can kill you. Electricity is unlike most other dangerous things you can come in contact with because it gives no warning and no symptoms to be wary of. Its effect is immediate. It can kill you, render you unconscious, or severely burn you.

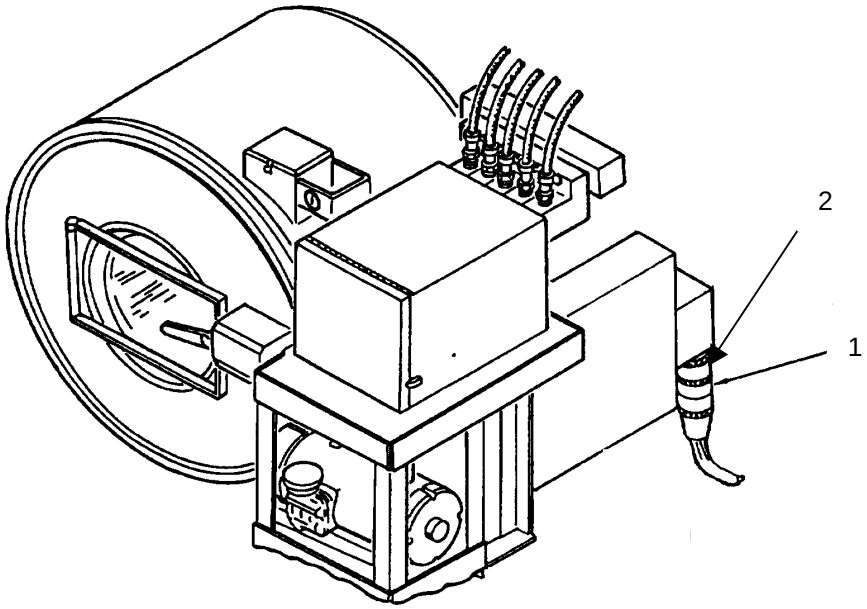
NOTE

The main power cable and ground rod is typically left installed when the laundry unit is operated at the same location for a period of time. If this is the case, skip the procedures for installing them.

1. Ensure the generator master switch is in the OFF position. Refer to TM 5-6115-585-12.

2. Remove the dust caps from the main power cable (1) and the power distribution panel connector (2).

3. Ensure that main power cable plug (1) is connected to the power distribution panel receptacle connector (2).

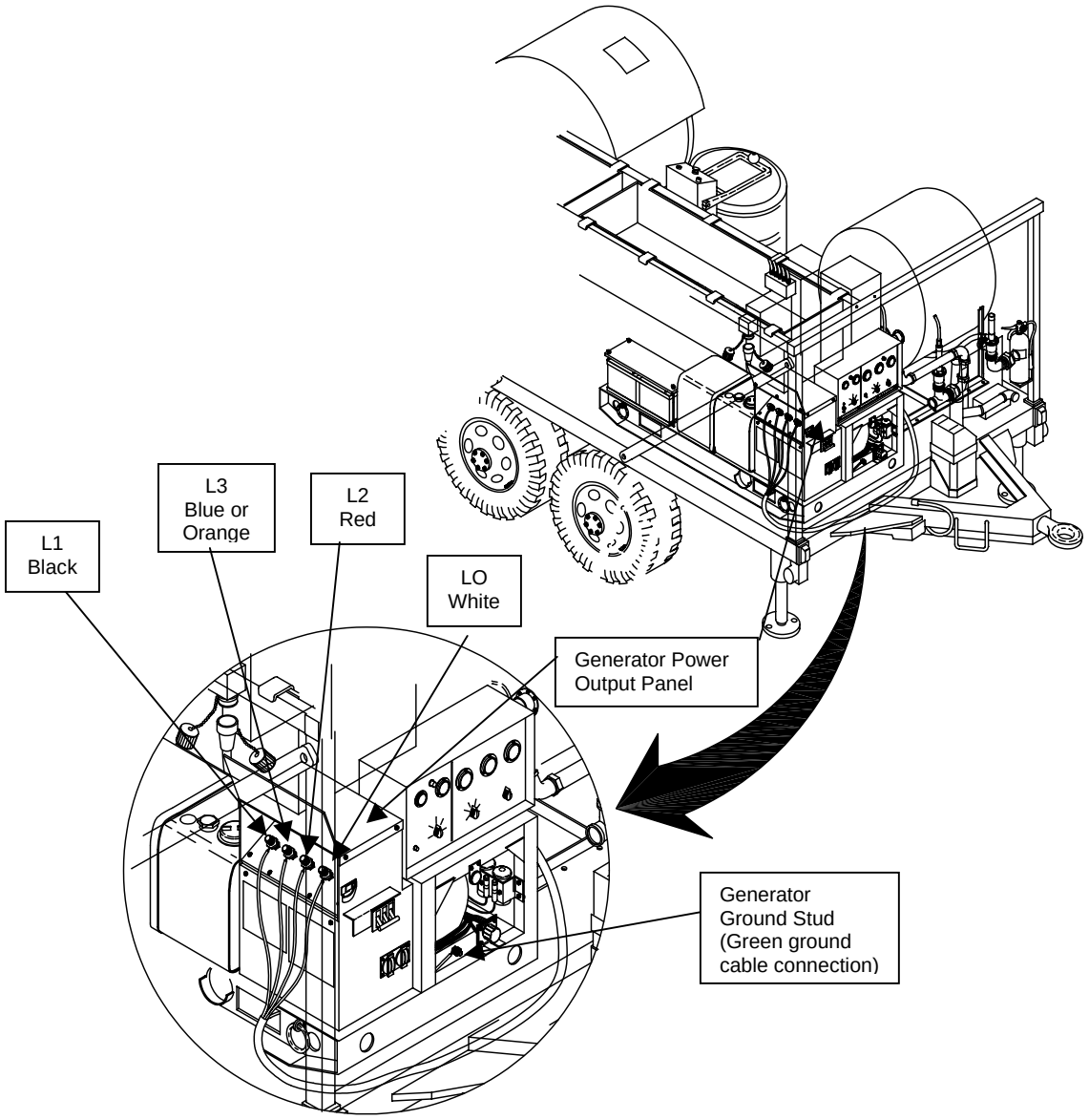


NOTE

If M-85 laundry has been used previously, the pigtail ends are connected as shown below.

4. Connect the pigtail ends of the main power cable to the generator power output panel as follows: (Refer to TM 5-6115-585-12 if necessary.)

Generator Connector	Main Power Cable
L1	BLACK
L2	RED
L3	BLUE or ORANGE
LO	WHITE
GROUND	GREEN (The ground cable is connected to the ground stud located at the bottom of the generator frame.)



WARNING

Extreme care must be taken to prevent injury to fingers or hands when driving the ground rods. Do not place hands between the ram and drive collar. Gloves should be worn. Be sure all connections are tight so as to avoid a possible spark between the units and the ground rod.

5. Locate ground rod with ground rod coupling and driving stud.

NOTE

If driving gets too hard, soak the earth with water and try driving rod until eight feet of rod is in the ground. If this does not work initially, continue soaking ground. If unable to get eight feet of rod into the soil, then keep soil moist around the rod for the duration of the operation.

6. Drive ground rod into ground with hammer. When ground rod is six inches above ground, remove driving stud (1).

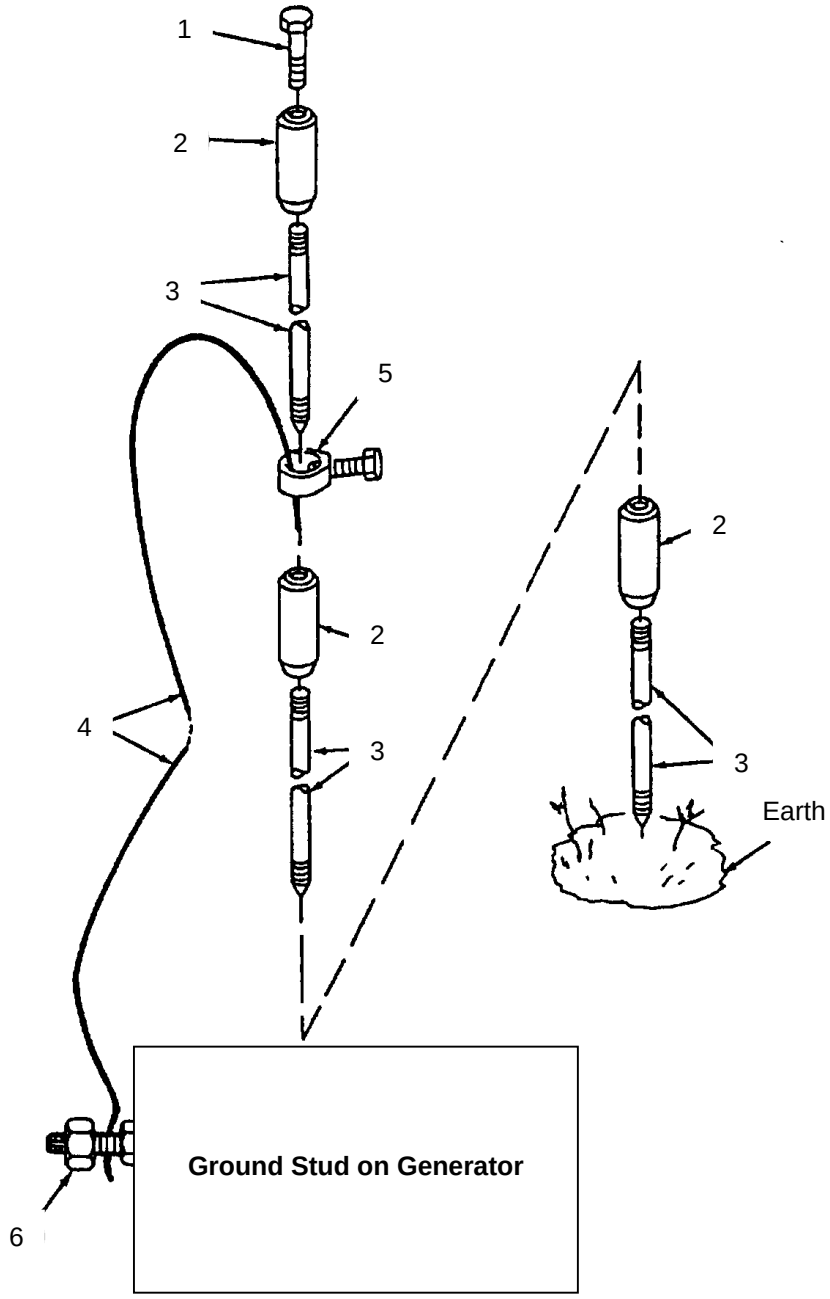
7. Screw the next ground rod section (3) into ground rod coupling (2). Screw driving stud (1) into ground rod coupling (3).

8. Continue this process until ground rod is eight feet below earth's surface.

9. Install bare copper wire (4) into electrical clamp (5) and tighten clamp.

10. Install bare copper wire (4) onto lug of generator marked GROUND (6).

11. Place lug terminal that comes on braided wire with ground rod in toolbox.

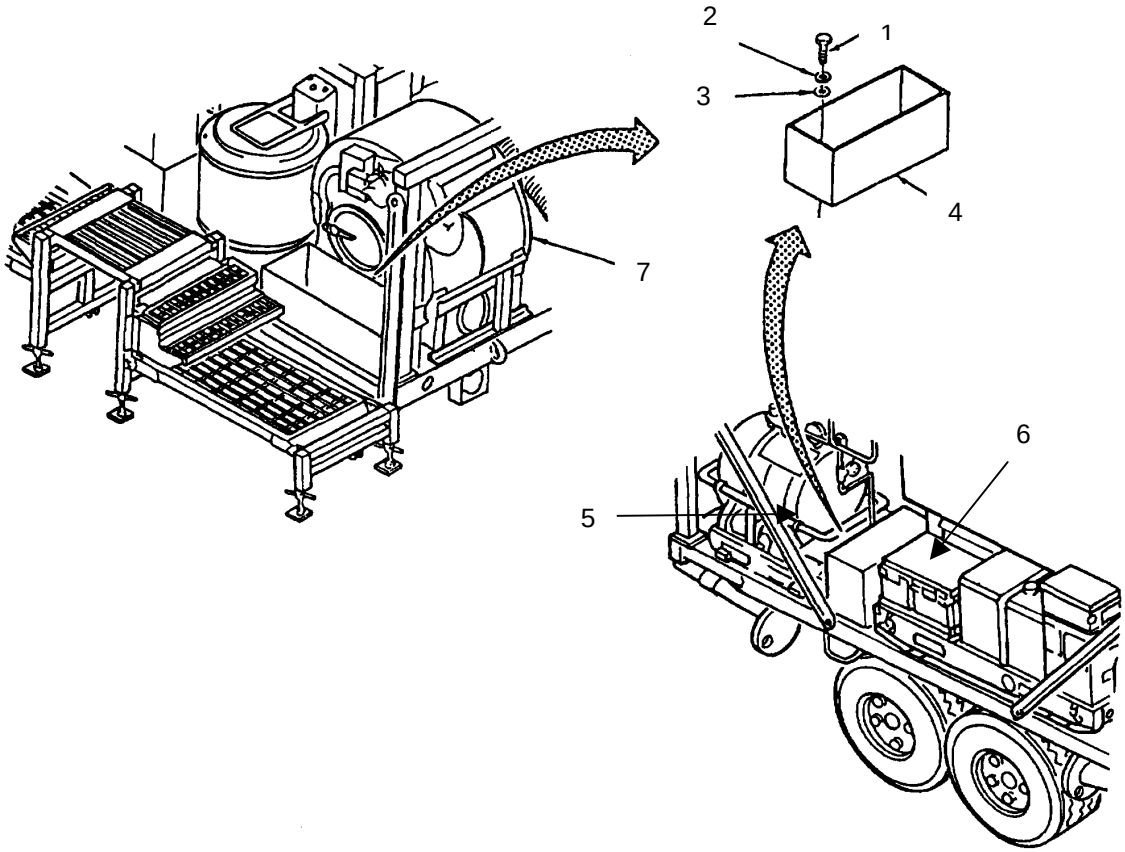


Install Dryer Bin

1. Remove four hexagon head cap screws, (1) lock washers (2), and flat washers (3) holding the dryer bin (4) in its storage location between the water heater (5) and generator (6).

2. Remove the dryer bin (4) and place it in front of dryer (7).

3. Re-install four hexagon head cap screws, (1) lock washers (2), and flat washers (3) in the same location from which they were removed between the water heater and generator.



Connecting Dryer Fuel Hoses

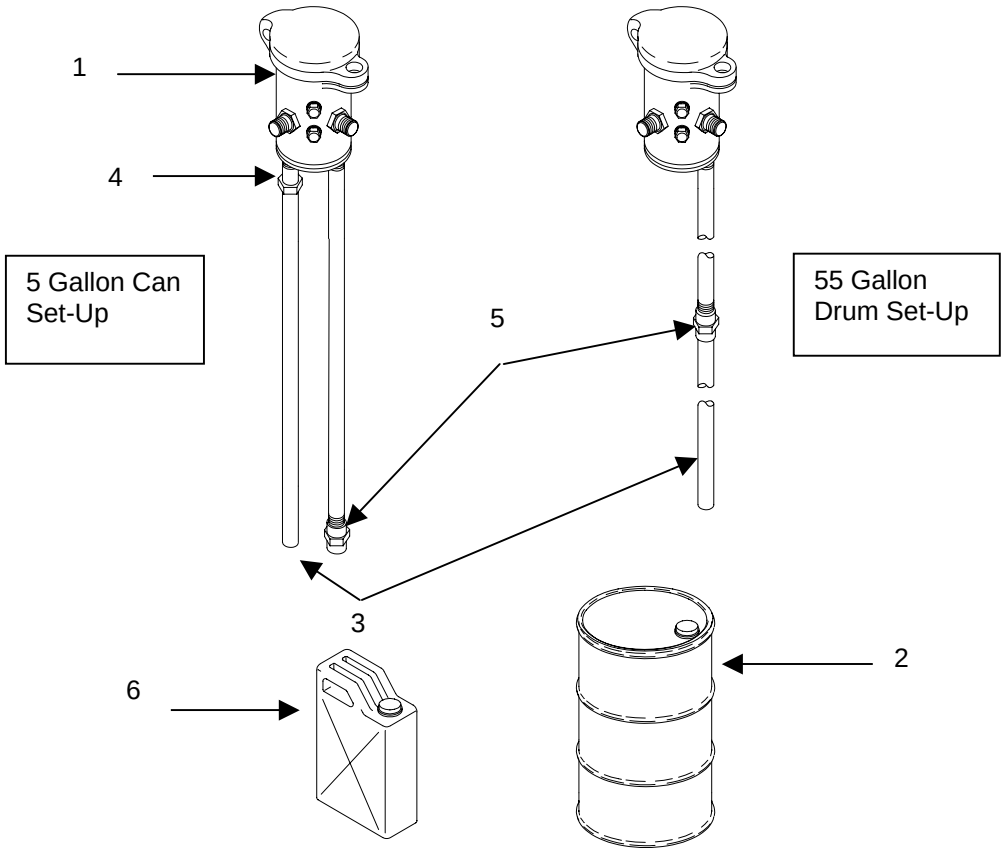
WARNING

Use only diesel or JP-8 fuel. Failure to do so may result in death or serious injury to personnel or damage to equipment

1. Prepare the drum fill adapter (1) as follows:
2. If a 55-gallon (208 liters) drum (2) is used, remove drum extension (3) from return outlet (4).
3. Install the drum extension (3) on the supply pipe coupling (5).
4. Install the drum fill adapter into 55-gallon (208 liters) drum (2).
5. If a 5-gallon (19 liter) military gas can (6) is used, install the drum fill adapter (1) onto the can with the drum extension (3) installed on the return outlet (4).

NOTE

Tighten 3/4-in drum extensions couplings with adjustable wrench to prevent air from entering drum fill adapter.



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WARNING

Be sure that fuel lines do not touch, or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

6. Locate two 25’ fuel hoses (1) stored under dryer (2).

NOTE

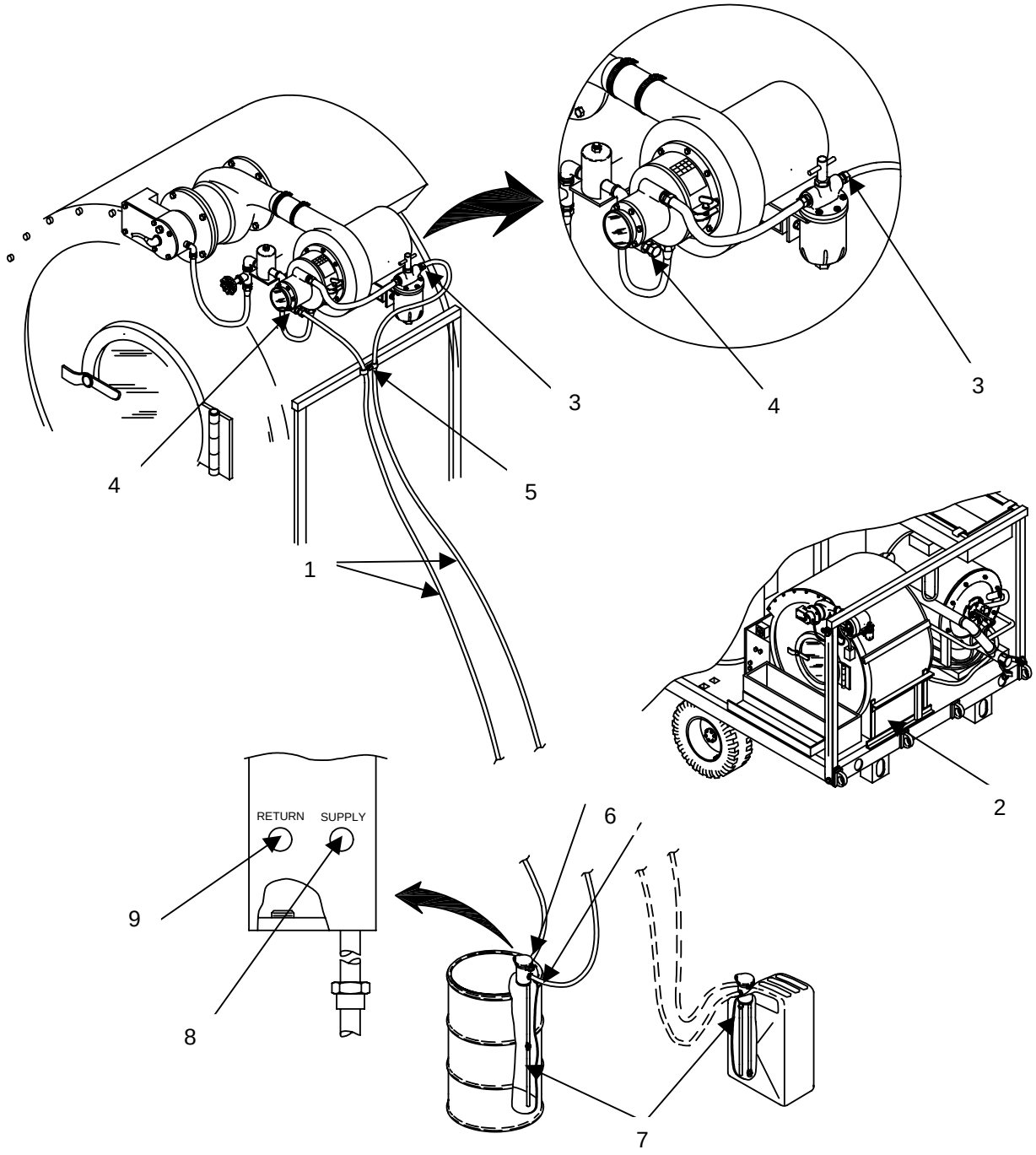
Remove dust plugs prior to connecting fuel hoses.

7. Connect one of the two fuel hoses to the dryer fuel filter male connector (3) and the other fuel hose to the dryer fuel pump 90^0 fitting (4)

8. On M-85-200 Model Laundry Unit, position fuel hoses (1) in clamp (5) on right side of dryer and tighten the clamp.

9. Connect the other ends of the fuel hoses (6) to the drum fill adapter (7). The line from the fuel filter (3) connects to the fitting labeled SUPPLY (8) on the drum fill adapter. The line from the fuel pump 90^0 fitting (4) connects to fitting labeled RETURN (9) on the drum fill adapter.

10. Tighten the ¾” fuel line couplings using an adjustable wrench.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Connecting M-85 Water Heater Fuel Hoses

WARNING

Use only diesel or JP-8 fuel. Failure to do so may result in death or serious injury to personnel or damage to equipment.

1. Prepare drum fill adapter as described in previous procedure for the dryer.

2. Locate two 25’ fuel hoses (1) stored under water heater (2).

WARNING

Be sure that fuel lines do not touch, or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

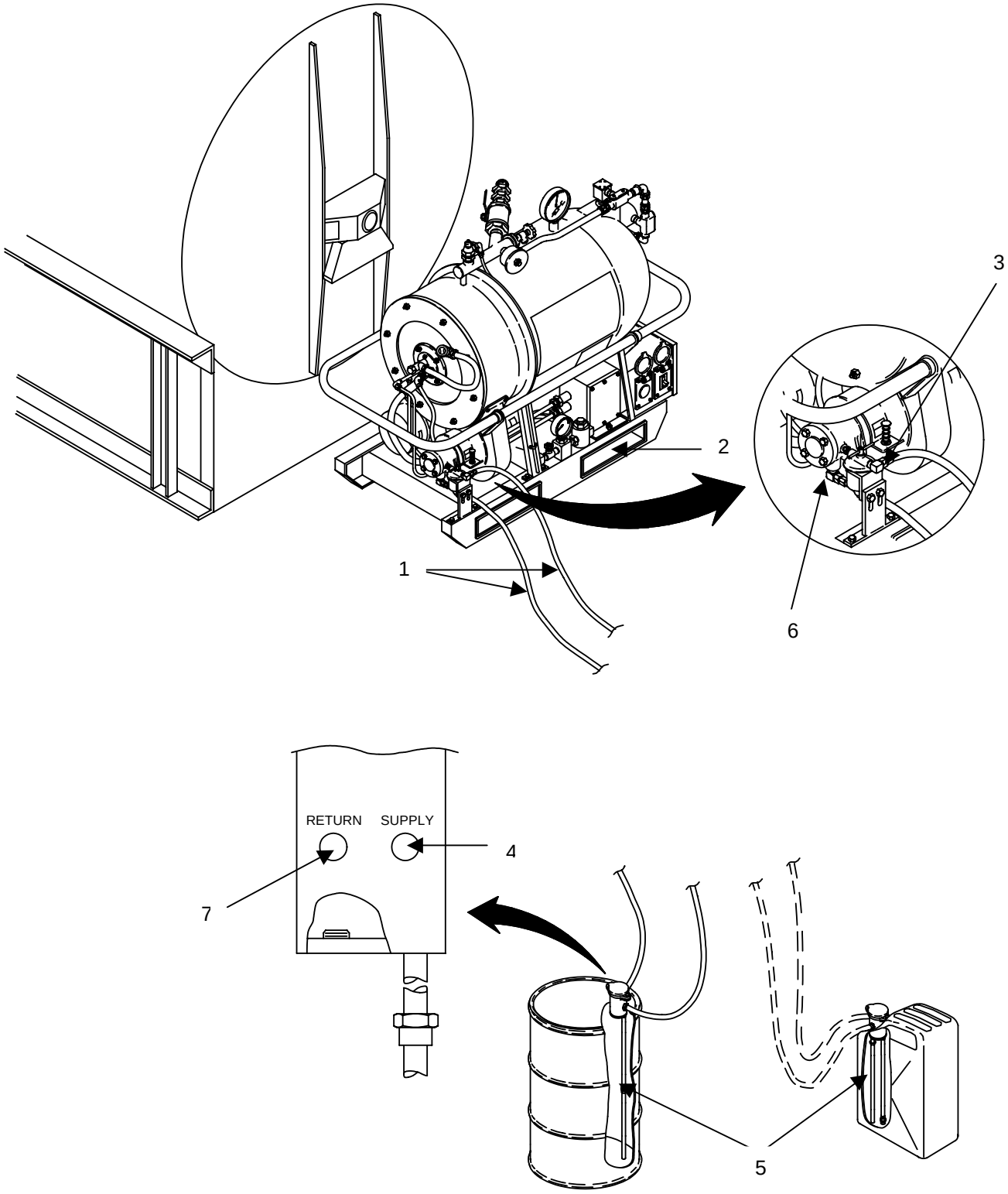
NOTE

Remove dust plugs prior to connecting fuel hoses.

3. Connect one fuel hose to the M-85 Water Heater fuel filter (3) (Refer to TM 10-4520-259-13&P for location of water heater components) and the SUPPLY fitting (4) of the drum fill adapter (5).

4. Connect the other fuel hose to the bottom of the M-85 Water Heater fuel pump (6) (Refer to TM 10-4520-259-13&P for location of water heater components) and the RETURN fitting (7) of the drum fill adapter.

5. Tighten the 3/4-in fuel line couplings using an adjustable wrench.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Connect Dryer, Generator, and Water Heater Exhaust Hoses.

1. Unhook straps (1) and remove metal exhaust hoses from Laundry Unit.

WARNING

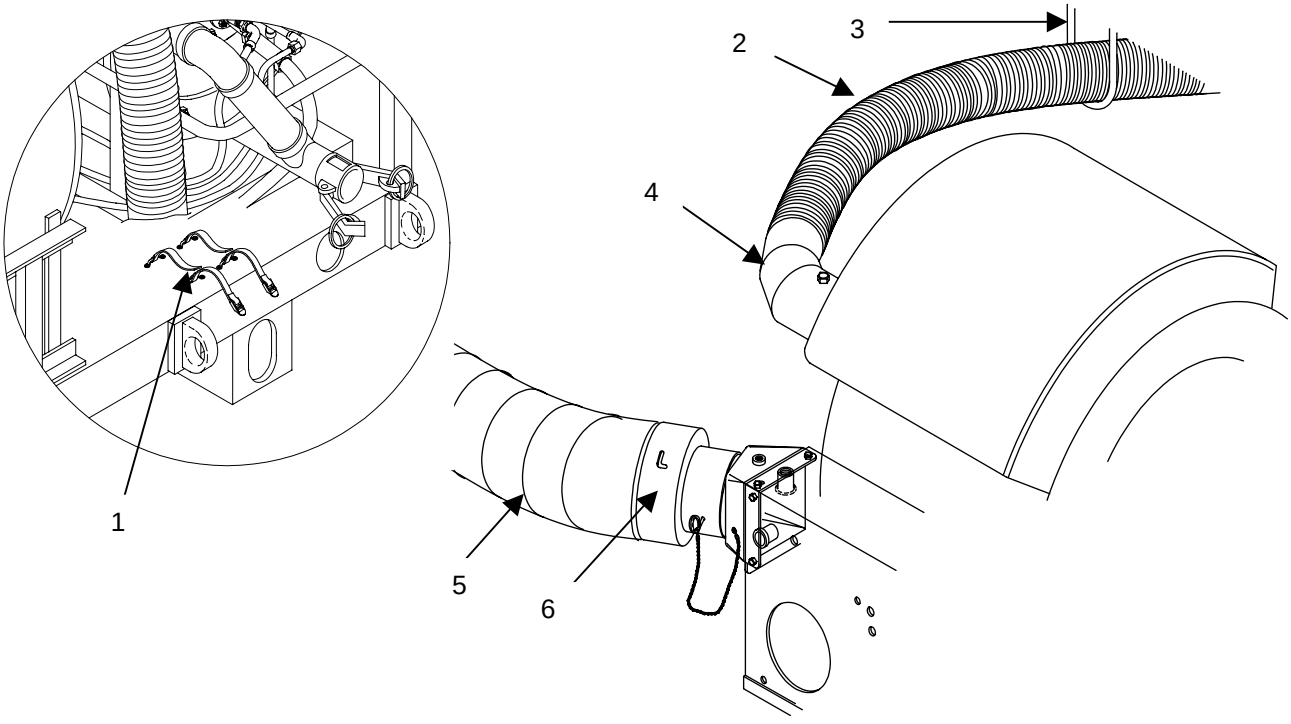
Be sure that exhaust ducts do not touch, or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

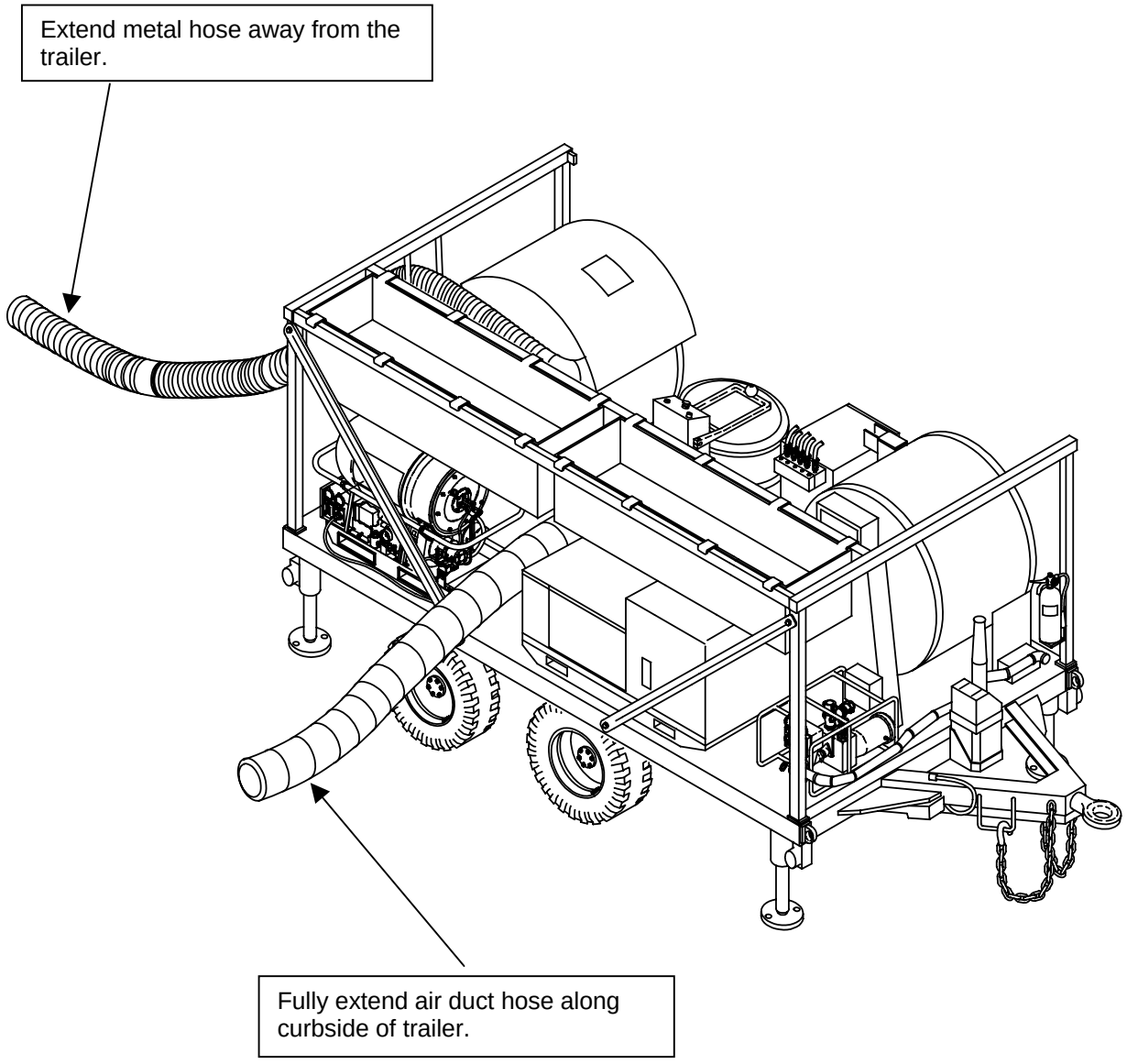
2. Connect one 5-inch (12.6 cm) metal hose (2) through the hose bracket (3) to the dryer exhaust elbow (4). Connect the second 5-inch (12.6 cm) metal hose to the end of the first and extend it away from the trailer.

NOTE

The dryer air duct hose is stored inside the dryer bin during transportation.

3. Install 12-inch (30.5 cm) air duct hose (5) on dryer exhaust duct adapter (6). Fully extend air duct hose (5) along curbside of trailer.




Extend metal hose away from the trailer.
Fully extend air duct hose along curbside of trailer.

WARNING

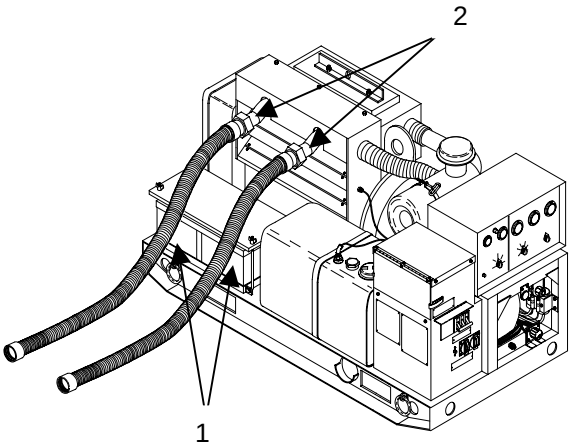
Carbon monoxide is dangerous. Ensure that exhausts are properly vented to an open-air area. Death or serious injury to personnel can result from heavy exposure to exhaust gas.

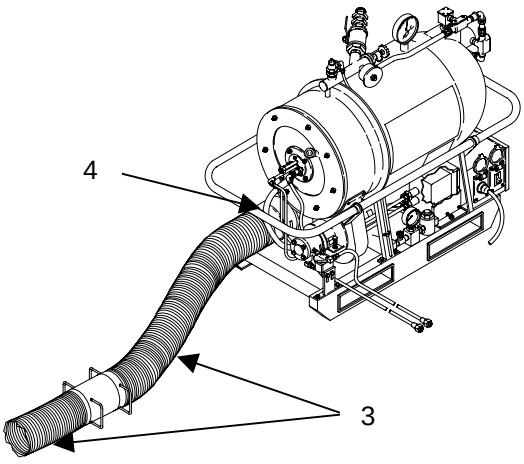
4. Connect two 2-inch (51 mm) generator exhaust hoses (1) to the generator exhaust ports (2). Extend ducts away from trailer.

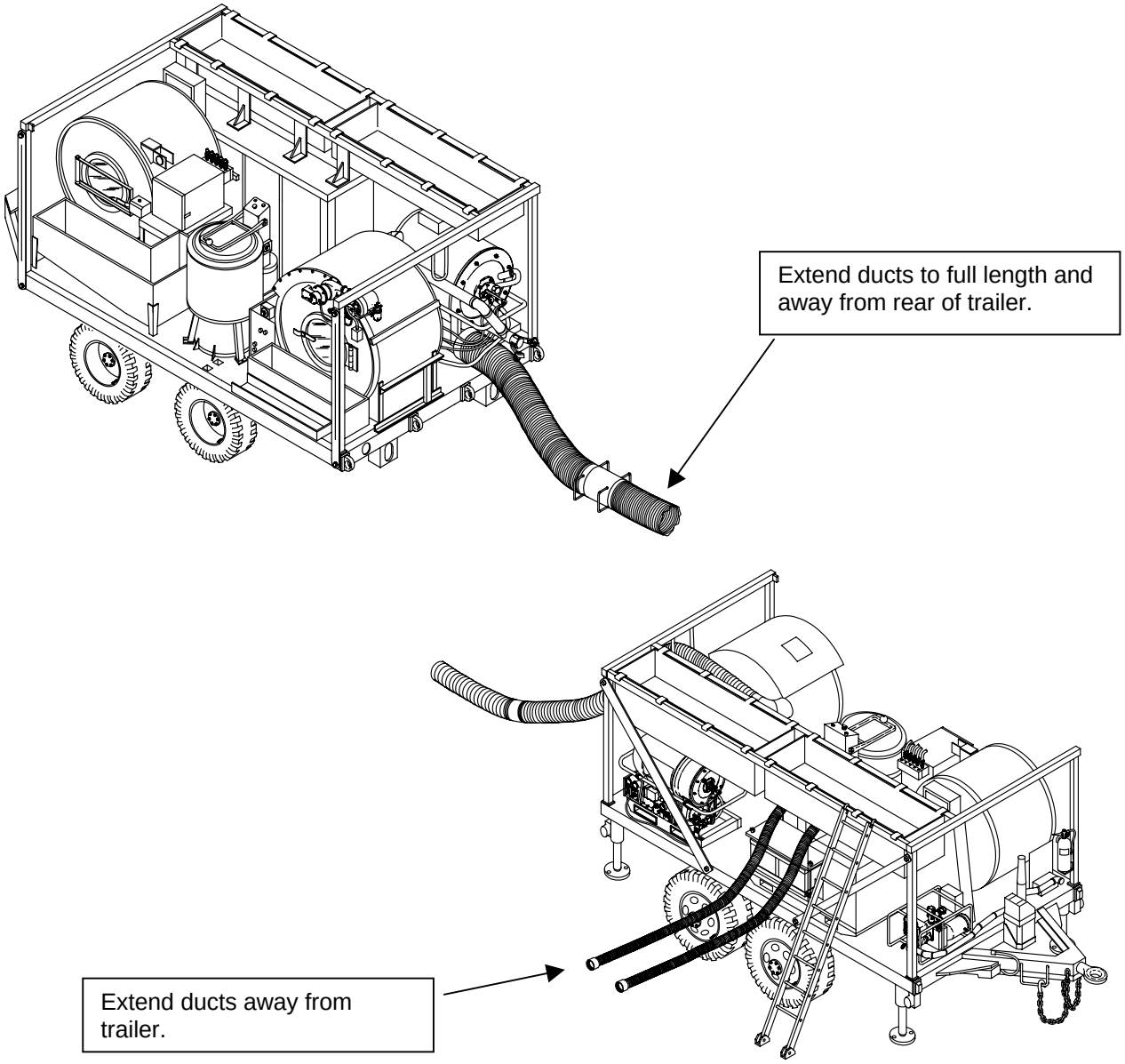
WARNING

Be sure that exhaust ducts do not touch, or cross water hoses, power cables, or exhaust ducts. Melting/damage can occur causing leaking fuel and water or electrical hazards. Death by electrocution, fire, or explosion could result.

5. Connect two 7-inch (17.8 cm) burner exhaust ducts (3) together. Connect joint burner exhaust ducts to the water heater exhaust port (4).







Sound Control Panel Installation

Install the sound control panels as described in WP 0013.

INITIAL ADJUSTMENTS

Prior to operating the laundry unit, the following component preparation and initial adjustments and settings must be made. Ensure that sufficient JP-8 diesel fuel is available in the fuel drums and/or 5 Gallon cans.

WARNING

If EMERGENCY SHUTDOWN is required, turn MASTER SWITCH on generator control panel to OFF. Refer to TM 5-6115-585-12 and familiarize yourself with the location of this switch. All electrical power to Laundry Unit will be cut off. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

Ear protection is required when operating the Laundry Unit. Serious hearing loss could occur if the Laundry Unit is operated without ear protection.

CAUTION

Ensure that all circuit breakers on the main power panel of the laundry unit are in the OFF position. Ensure that ON/OFF switches on the washer, dryer, extractor, water heater and water pump are in the OFF position to prevent serious equipment damage.

NOTE

Ensure PMCS has been done on water heater, generator and laundry.

Start the generator as described in TM 5-6115-585-12.

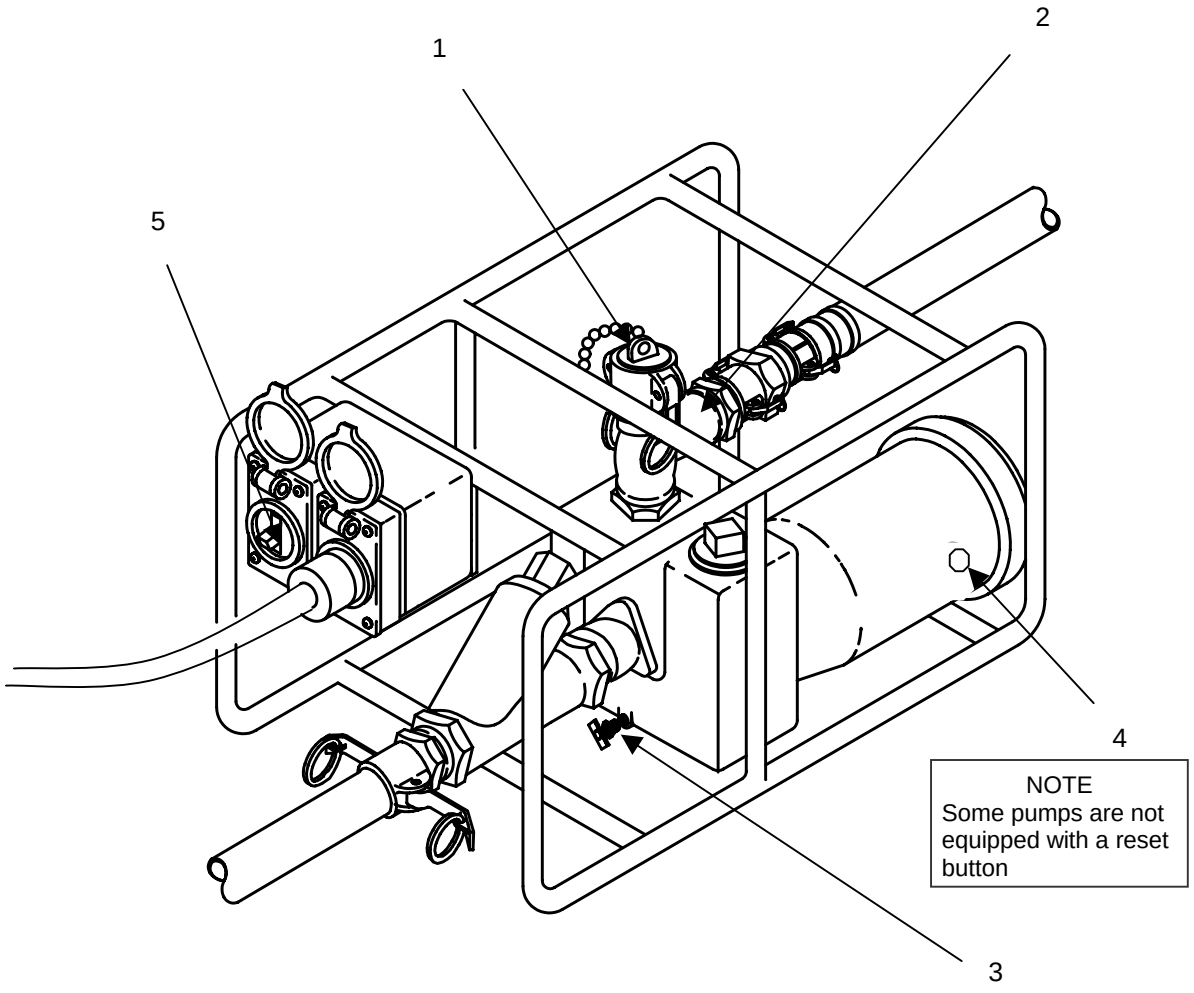
To prepare the water pump for operation, proceed as follows:

1. Remove quick disconnect plug (I) at the top of the pipe tee (2).
2. Ensure petcock drain (3) is closed.
3. Prime the pump by filling up the pipe tee (2) with clean water.
4. Replace quick disconnect plug (1).
5. Press reset button (4) (if pump is so equipped).
6. Set main and all component circuit breakers on the laundry main power panel to ON.

NOTE

When air compressor breaker is set to ON, air compressor will operate.

7. Set water pump toggle switch (5) to ON.



To prepare the water heater for operation, proceed as follows:

NOTE

The air must be completely vented from this hose before the vent is closed. Failure to follow this procedure correctly may activate the low water switch, preventing startup.

1. Install five-foot drain hose on vent valve. Open the vent valve (1) until water flows from vent hose (2), then close vent valve (1).

2. Open the water outlet ball valve (3) (handle should be parallel with the piping).

NOTE

Priming the fuel pump should only be necessary if the pump is dry after the water heater has been in storage, or a new or rebuilt fuel pump has been installed. However, if after three attempts to start the water heater, no fuel pressure is indicated, the pump should be primed. Refer to TM 10-4520-259-13&P.

3. Open the air band (4) on the fuel pump (5) approximately half way.

NOTE

The water heater will not operate if the thermometer reading is higher than the temperature control setting.

4. Set the water temperature control (6) to 160^0 F (71°C).

5. Open control box (7). Press UV or IR scanner flame safeguard control reset button (8) and close box.

WARNING

Do not open vent valve or touch exhaust ducts while the water heater is running or immediately after shutdown, as severe burns may result.

6. Open the fuel valve (9). (Counterclockwise opens valve).

7. Set power switch (10) to ON and observe correct rotation of motor. (Clockwise, looking at rear of motor.) If motor rotation is incorrect, refer to unit maintenance.

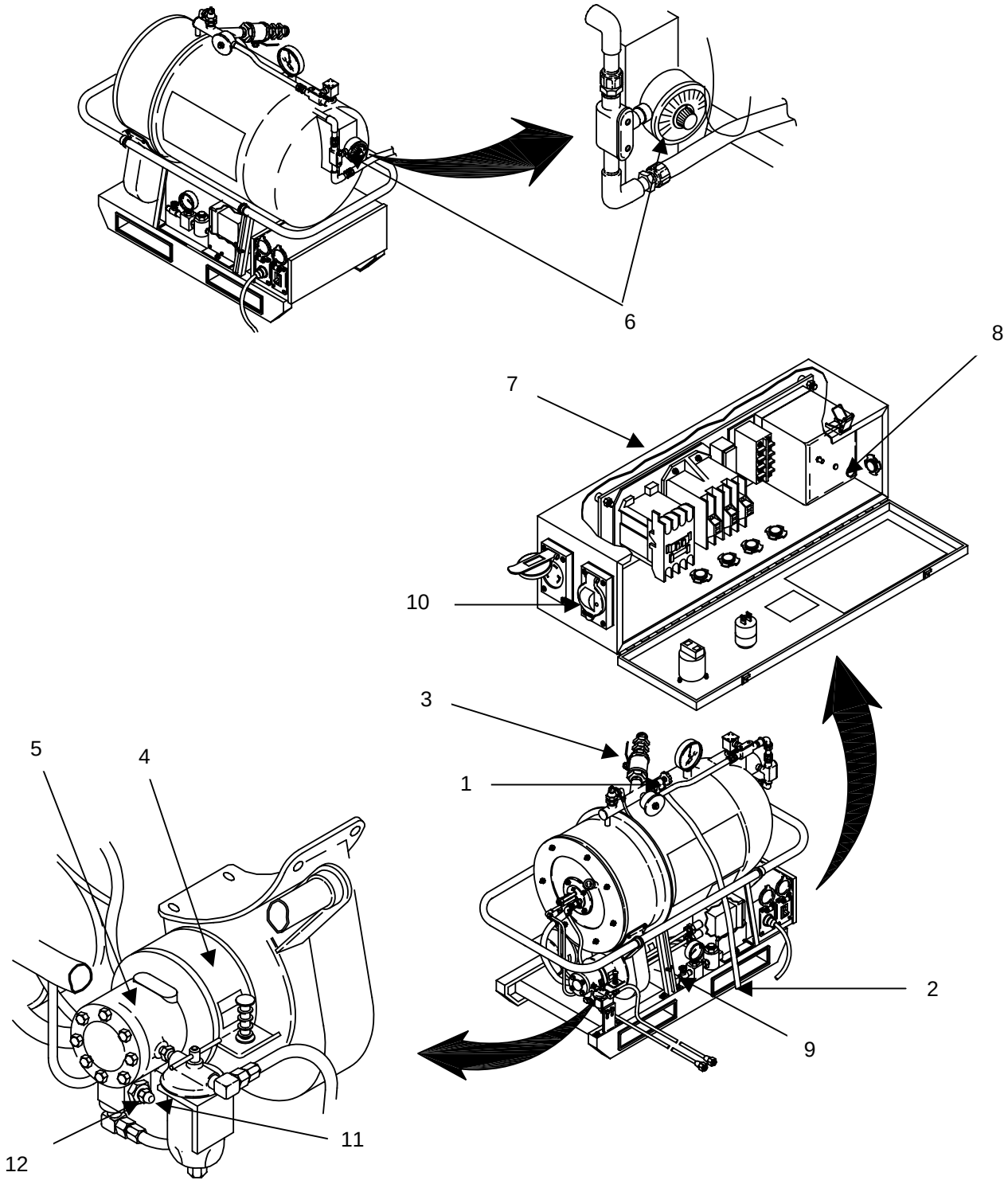
8. If necessary, adjust fuel pressure for elevation as follows:

   a. Remove cap (11) from pressure adjustment screw (12) on right side of fuel pump (5).

   b. Turn the adjustment screw (12) in, or out, to the appropriate setting on the fuel pressure gage as shown in the table below. Then re-install the cap (11) onto the adjustment screw (12).

Elevation	Pressure
Up to 2500 ft	125 psi (preset at factory)
2501ft to 4000ft	115 psi
4001 ft and Up	100 psi

9. Adjust the air band (4) on the fuel pump (5) until there is little or no smoke in the heater exhaust.



Before preparing the dryer for operation, determine what type of clothing is to be dried, then proceed as follows:

NOTE

Priming the fuel pump should only be necessary if the pump is dry after the dryer has been in storage, or a new or rebuilt fuel pump has been installed. However, if after three attempts to start the water heater, no fuel pressure is indicated, the pump should be primed in the same manner as the water heater.

CAUTION

When setting temperature control knob, always turn knob to the right. Failure to do this will damage temperature control.

1. Set temperature control (1) to correct setting as follows:

Material	Temperature
Cotton	250°F (121°C)
Wool	200°F (93°C).
Battle Dress Uniform (BDU)	Do not exceed 130°F (54°C).

CAUTION

Make sure to turn sequential timer clockwise; turning counter-clockwise could cause damage to equipment.

2. Set sequential timer (2) to ON, for approximately 10 minutes.

3. Open air shutter (3) approximately ½".

4. Open the fuel shutoff valve (4). Counterclockwise opens valve.

5. Loosen three thumbscrews (5) on control cover (6) and open the cover.

6. Push UV scanner flame safeguard control reset button (7).

7. Close control cover (6) and tighten three thumbscrews (5).

8. Push motor START button (8) on front panel (6).

9. Check fuel pressure gage (11) for correct setting. If necessary, adjust fuel pressure for elevations as follows:

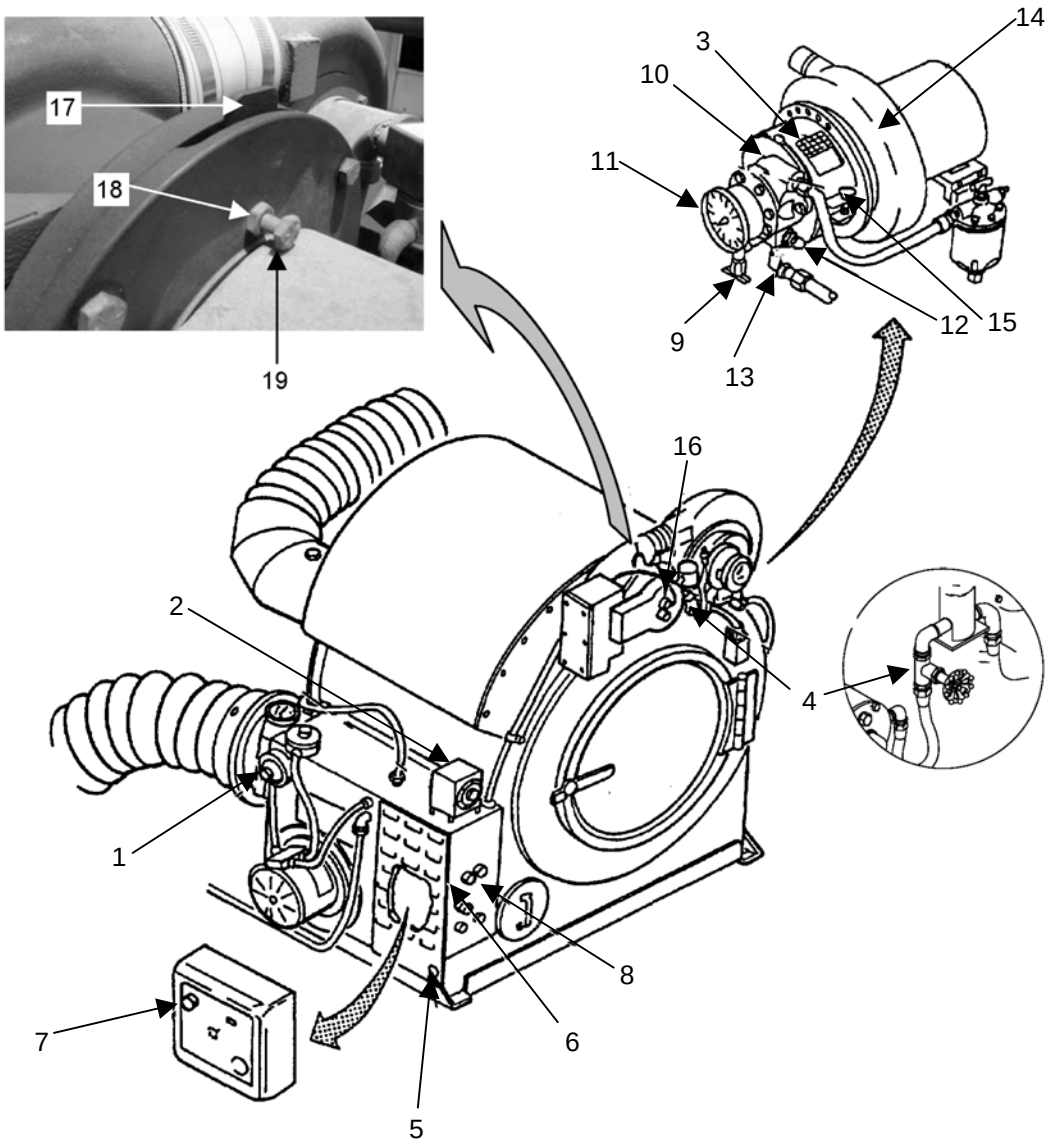
   a. Remove cap (12) from pressure adjustment screw (13) on right side of fuel pump (10).

   b. Turn the adjustment screw (13) in, or out, to the appropriate setting on the fuel pressure gage as shown in the table below. Then re-install the cap (12) onto the adjustment screw (13).

Elevation	Pressure
Up to 3000 ft	120 psi (factory setting)
3001 ft to 5000 ft	110 psi
5001 ft and UP	100 psi

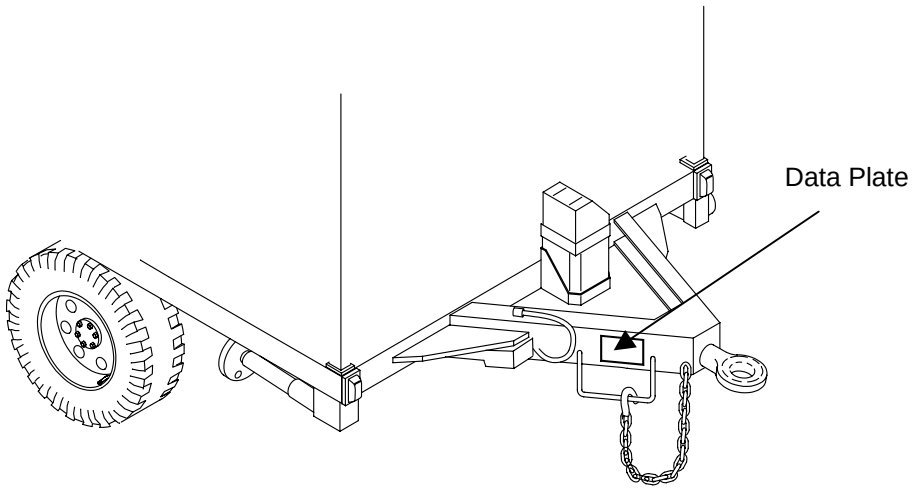
10. Adjust the air shutter (3) on the blower (14) by loosening the thumbscrew (15) and sliding shutter up or down to increase or decrease air opening, so that the heater burner has a steady roar. A bright clean flame will be seen in the sight glass (16).

11. **(Only on M85 200)** Adjust the burner air nozzle (17) for best operation. Loosen lock nut (18) and set screw (19). Adjust the nozzle lever (17) so that a bright, clean flame burning with a steady roar is achieved. Then tighten set screw (19) and lock nut (18).



LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
OPERATION UNDER USUAL CONDITIONS

This work package contains the operating procedures for the M-85-100 and M-85-200 trailer mounted laundry units. Separate procedures are provided for each model laundry. Make sure you are using the correct procedures for your model laundry unit. If you do not know what model laundry you are to operate, check the data plate on the left side of the trailer hitch.



If you have just completed the initial adjustment procedures and want to operate the equipment, go directly to the automatic or manual washing procedures for your model laundry unit on the following pages:

OPERATION	M-85-100	M85-200
AUTOMATIC	PAGE 0007 00-14	PAGE 0007 00-20
MANUAL	PAGE 0007 00-18	PAGE 0007 00-26

If your laundry unit was shut down for a period of time, and the water heater, generator, water pump, and dryer were shut down, for example, when the laundry is shut down over-night, begin with the component start up procedures on the following page.

WARNING

If EMERGENCY SHUTDOWN is required, pull out DC control circuit breaker on generator control panel (Refer to TM 5-6115-585-12 and familiarize yourself with the location of this control), or turn OFF 60 AMP main circuit breaker on power distribution panel to shut down all electrical power to the laundry unit. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

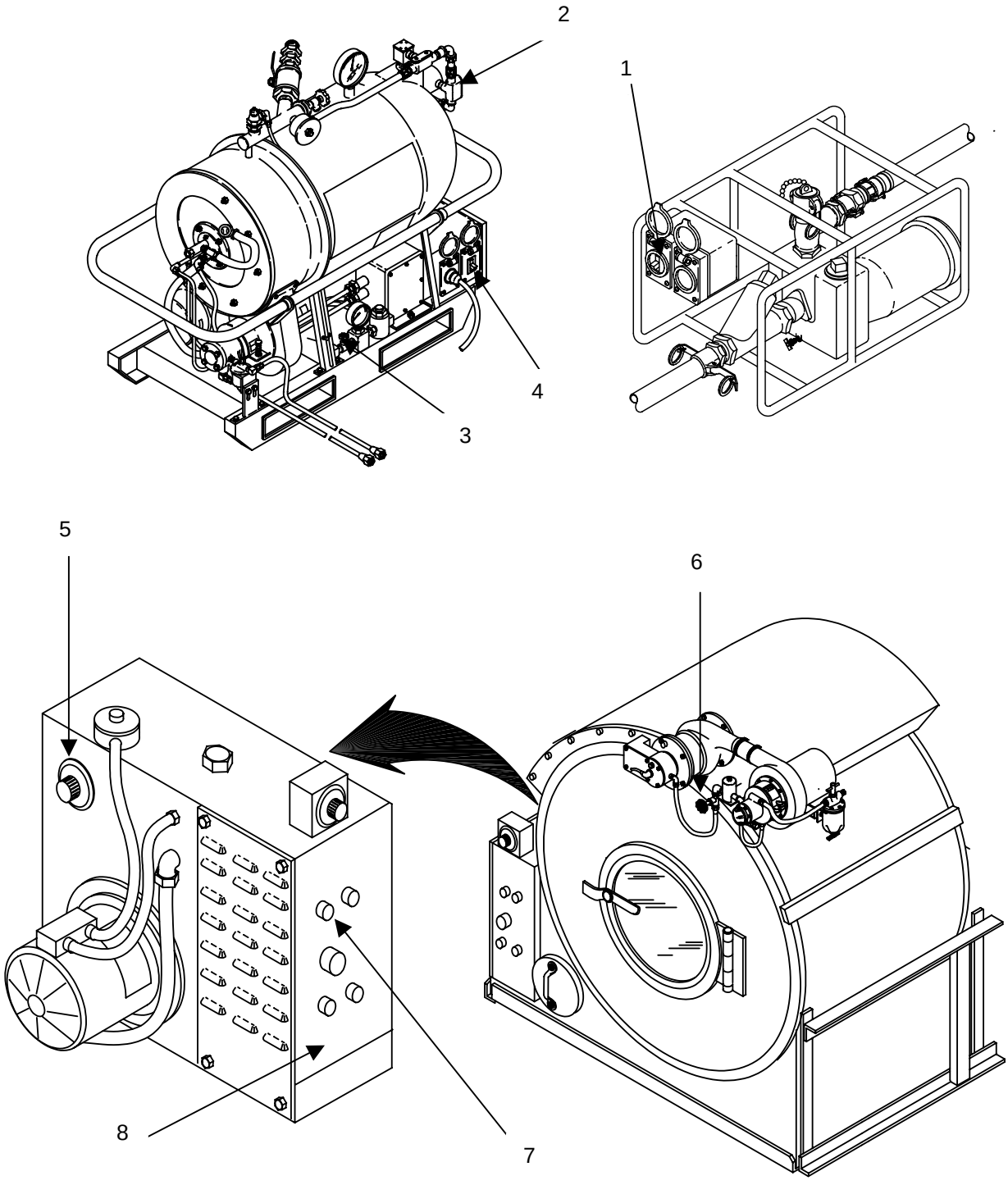
Ear protection is required when operating the Laundry Unit. Serious hearing loss could occur if the Laundry Unit is operated without ear protection.

1. Perform starting procedures on generator as described in TM 5-6115-585-12.
2. Set toggle switch (1) on water pump to ON.
3. Set water heater temperature control (2) to 160°F (71°C).
4. Open water heater fuel valve (3) (counterclockwise).
5. Set water heater switch (4) to ON. Refer to TM 10-4520-259-13&P for any specific information on the water heater.
6. Set dryer temperature control (5) to correct setting as follows:

   For cotton items to 250°F (121°C).

   For wool items to 200°F (93°C).

   For Battle Dress Uniform (BDUs) do not exceed 130°F (54°C).
7. Open the dryer fuel valve (6) (counterclockwise).
8. Push dryer motor START button (7) on switch box cover (8).


2
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7

Table 0007 00-1. Clothing Weights

PERSONAL CLOTHING ITEMS	Dry Weight	
	Pounds	Kg
Uniform, Battledress, Temperate Zone	3.14	1.34
Cap, Combat, Temperate Camouflage Type I	3.5 oz	0.10
Cap, Desert, Type II	3.5 oz	0.10
Hot Weather BDU Cap	2.5 oz	0.70
Uniform, Battledress, Hot Weather	2.94	1.32
Hat and Insect Net, Hot Weather	5.0 oz	0.14
Uniform, Battledress, Desert	3.38	1.50
Parka, Desert Nighttime Camouflage	1.90	0.86
Liner, Desert Nighttime Camouflage	1.50	0.63
Trousers, Desert Nighttime Camouflage	1.30	0.59
Hat, Desert Camouflage	4.0 oz	0.11
Drawers/Undershirt, Cotton, Brown 436 (Ensemble)	8.90	0.24
Combat Vehicle Crewman's Clothing System	14.0	6.36
Liner, Coveralls, Combat Vehicle Crewman's	2.20	1.00
Coveralls, Combat Vehicle Crewman's	2.75	1.25
Overalls, Combat Vehicle Crewman's	4.6	2.09
Jacket, Cold Weather, High Temperature Resistant	2.31	1.05
Hood, Combat Vehicle Crewman's Coveralls (Balaclava)	0.7	0.32
Aircrew Battledress Uniform	2.5	1.13
Coverall, Flyer's, Fire Resistant	2.2	1.00
Jacket, Flyer's, Lightweight	1.47	0.67
Uniform, Cold Wet	18.69	8.40
Uniform, Cold Dry	24.9	14.20
Underwear, Cold Weather	12 oz	0.20
Socks, Men's, Wool, Cushion Sole, Stretch Type	2.6	0.80
Shirt, Cold Weather, Field, Wool/Nylon, Olive Green 108 (Ensemble)	3.78	1.72
Liners, Cold Weather, Coat and Trousers (Ensemble)	0.86	0.39
Coat, Cold Weather, Field, Woodland, Camouflage Pattern	4.0	1.80
Trousers, Cold Weather, Field, Woodland, Camouflage Pattern	3.34	1.52
Cap, Cold Weather, Insulating, Helmet Liner	0.28	0.13
Liner, Extreme Cold Weather, Parka and Trousers (Ensemble)	1.11	0.56
Parka and Trousers, Extreme Cold Weather	2.43	1.07
Hood, Extreme Cold Weather/Synthetic Fur	12.0 oz	0.34
Socks, Men's Wool, Winter	5.5 oz	0.16
Mask, Extreme Cold Weather	4.0 oz	0.11
Mask, Cold Weather, OG-207	3.0 oz	0.09
Underwear, Extended Cold Weather, Polypropylene (Ensemble)	1.5	0.68
Shirt, Polyester, Fiberpile, Extended Cold Weather	1.3	0.59
Overall, Bib, Cold Weather, Fiberpile	1.6	0.73
Trousers, Cold Weather, Field, Woodland Camouflage Pattern	4.0	1.80
Parka, Extended Cold Weather, Woodland Camouflage (Ensemble)	2.89	1.31
Hood, Balaclava, Extended Cold Weather	0.45	0.20
Ruff, Parka, Extended Cold Weather	0.35	0.16
Parka and Trousers, Snow Camouflage (Ensemble)	1.9	0.87
Parka and Trousers, Wet Weather (Ensemble)	2.31	1.05
Physical Fitness Uniform (Ensemble)	47.0 oz	0.97

Table 0007 00-1. Clothing Weights - Continued

HOSPITAL CLOTHING/LINEN	Dry Weight	
	Pounds	Kg
Slippers, canvas, pair	1.29	0.58
Cap, operating, surgical, green	0.08	0.04
Gown, operating, surgical, green	1.26	0.57
Trousers, operating, surgical	0.73	0.33
Shirt, man's, operating	0.72	0.33
Robe, dress, cord	2.25	1.02
Gown, operating, surgical, white	2.00	0.90
Sheet, bed, cotton, white	2.00	0.90
Pillowcase, cotton, white	0.40	1.81
Sheet, bed, cotton, green	2.00	0.91
Sheet, bed, cotton, fitted	0.58	0.26
Blanket, bed, cotton, white	3.38	1.53
Blanket, bed, wool, OD	4.67	2.12

Automatic Washing M-85-100 Model Laundry.
The following procedures are for the operation of the M-85-100 Model Laundry only, using a pre-punched washer formula card to control the wash cycle. If it is necessary to change formulas, proceed as follows:

WARNING

Do not make or change electrical connections while the unit is in operation. The voltage generated by the generator can cause death by electrocution. Keep moisture away from the engine—generator and keep the surrounding area dry when operating the unit. Failure to observe this warning may result in death by electrocution. Do not service the unit with fuel while the unit is in operation. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

If EMERGENCY SHUTDOWN is required, pull out DC control circuit breaker on generator control panel (Refer to TM 5-6115-585-12 and familiarize yourself with the location of this control), or turn OFF 60 AMP main circuit breaker on power distribution panel to shut down all electrical power to the laundry unit. Failure to observe this warning may result in serious injury or death to personnel.

CAUTION

Door unlock switch is interlocked with other switches. If washing machine still contains water, door will not unlock until washing machine has drained or damage to equipment may result.

1. Open front cover of washer control panel, and place Run/Stop knob (1) in stop position.

CAUTION

When removing/installing washer formula card, install from right side and always remove from left side of cycle timer. Do not remove washer formula card from right side as this may damage the card or cycle timer.

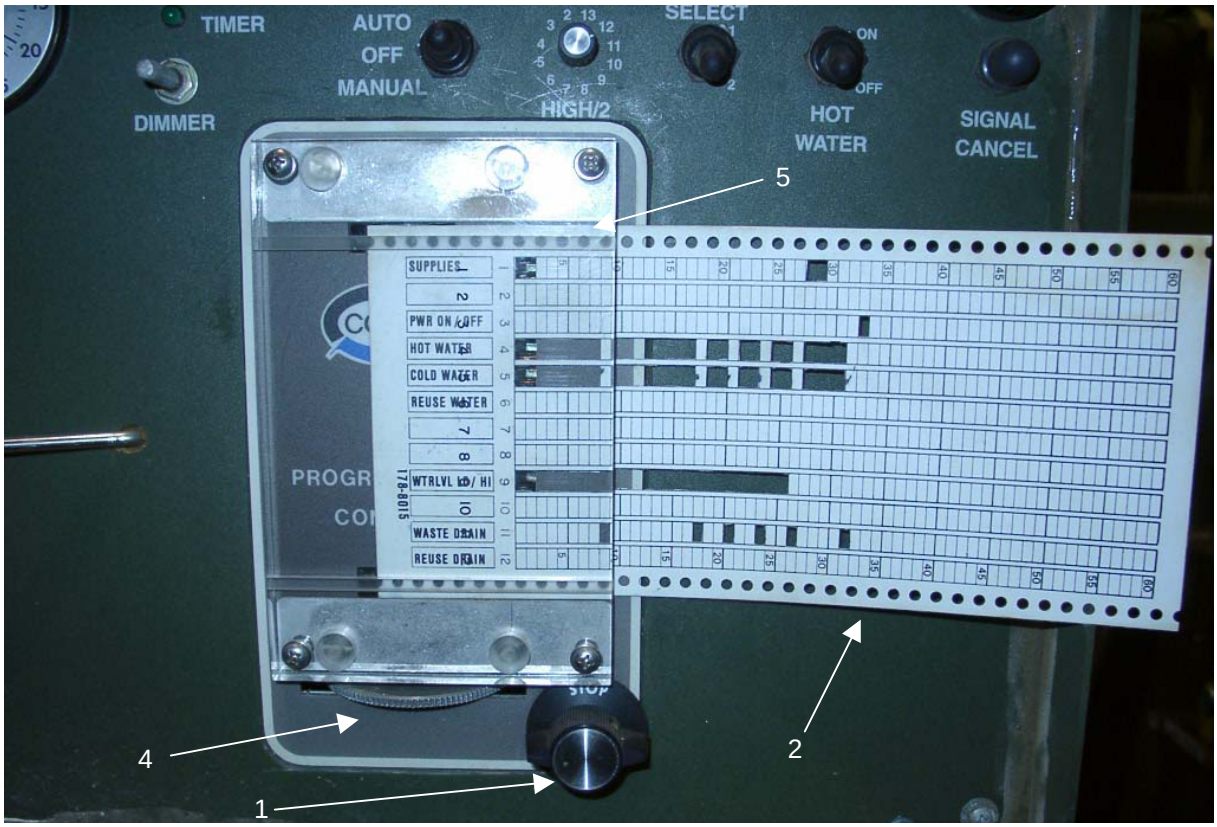
2. Pull formula card (2) in timer to the side and remove.

3. Insert left edge of card into right edge of card reader until cylinder control wheel engages card. Rotate wheel until hairline mark aligns with left edge of minutes on card.

4. Using cylinder control wheel (4) align start position with hairline start marker (5) on timer front and place Run/Stop knob (1) in RUN position. Timer is now ready to start.

5. Set MASTER switch (6) to ON.

6. Set AUTO/MANUAL switch (7) to OFF.


TIMER
AUTO
OFF
MANUAL
DIMMER
HIGH/2
SELECT
ON
OFF
HOT
WATER
SIGNAL
CANCEL
SUPPLIES
PWR ON / OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LO / HI
WASTE DRAIN
REUSE DRAIN
5
4
2
1

MANUAL
TIMER
MASTER
LEVEL
LOW/1
DRAIN
COLD
WATER
SIGNAL
ON
SUPPLIES
TIMER
ON
OFF
AUTO
OFF
MANUAL
LEVEL
SELECT
HIGH/2
HOT
WATER
SIGNAL
CANCEL
DIMMER
6
7
3
COOK
PROGRAM-TIMER
CONTROL

NOTE

To prepare the washer for an automatic wash cycle, proceed as follows:

1. Push unlock switch (1) on door lock cover and unlock the door.

2. Load the washer with up to 60 lbs of wash. Table 0007 00-1 lists the weight of various clothing items.

3. Check the air tank pressure gage (2) for a pressure of at least 60 psi (414 kpa). If pressure is lower than 60 psi, (414 kPa), refer to troubleshooting procedures.

4. Refer to FM 42-414 for field laundry washing and decontamination formulas. Select proper formula chart.

NOTE

When washing camouflage clothing, use warm water and mild detergent. Do not use chlorine bleach or starch on camouflage clothing.

5. Unlatch soap dispenser (6). Add soap and wash rinse chute with water.

NOTE

Every time you add supplies through soap dispenser, close cover after adding supplies. If cover is not closed, hot air will be vented causing water in washer to cool down.

6. Close and latch soap dispenser cover (6).

7. Place AUTO/OFF/MANUAL switch (7) in AUTO. Washer will start and run the formula selected.

8. When SUPPLIES light (8) and audible signal (9) activate, add supplies called for in formula.

9. At the end of the formula cycle a supplies signal alerts the operator that the formula is complete.

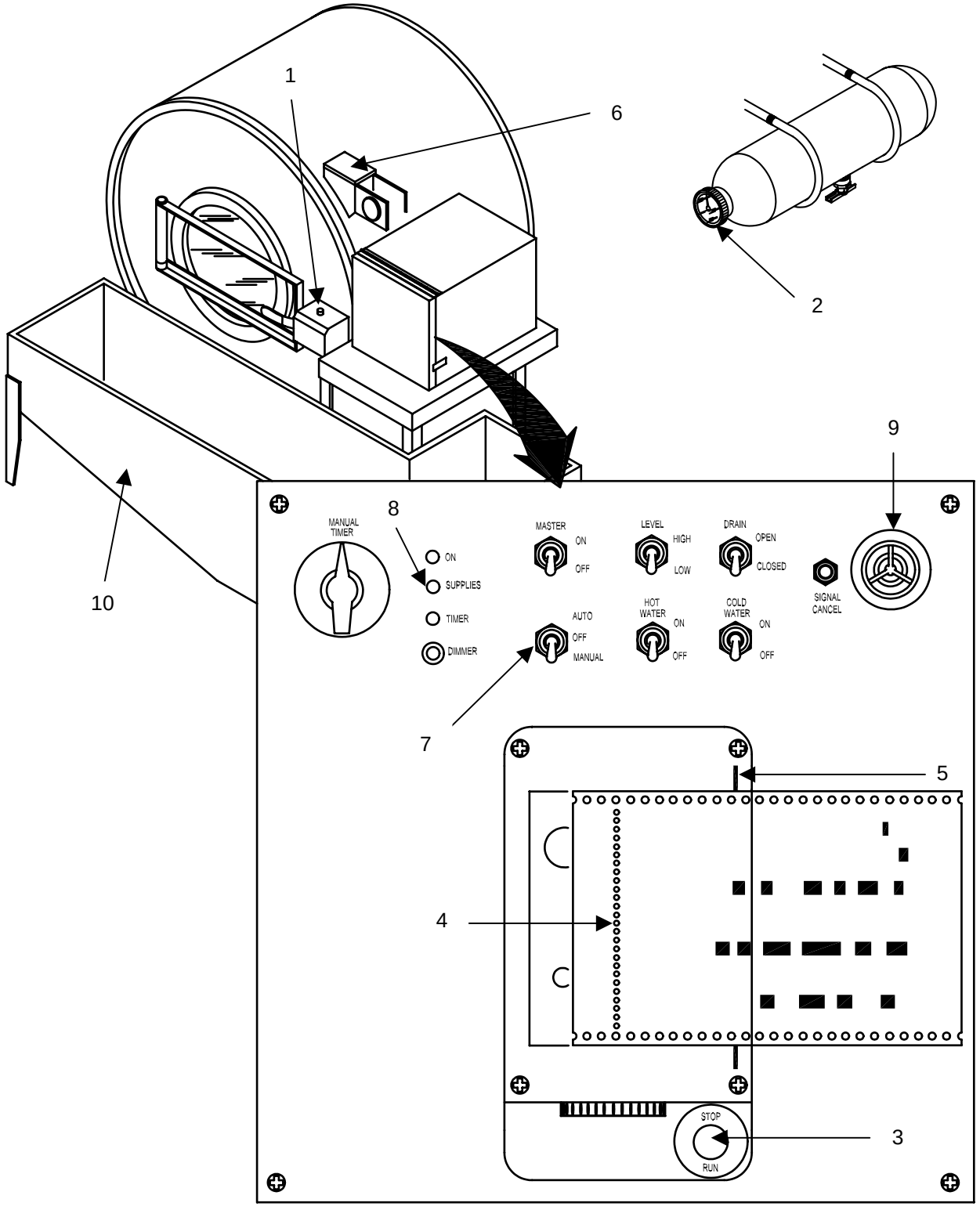
10. At the end of cycle place AUTO/OFF/MANUAL switch (7) in OFF.

11. Push unlock switch (1) on door lock cover and unlock the door.

NOTE

Door lock switch is interlocked with lever switches. If washing machine still contains water door will not unlock until washing machine has drained. This is a safety feature to protect operator from accidental scalding.

12. Transfer laundry to the wet wash bin (10).


1
6
2
9
8
10
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
MASTER
ON
OFF
LEVEL
HIGH
LOW
DRAIN
OPEN
CLOSED
SIGNAL CANCEL
AUTO
OFF
MANUAL
HOT WATER
ON
OFF
COLD WATER
ON
OFF
7
5
4
STOP
RUN
3

Manual Washing M-85-100 Model Laundry.
The M-85-100 Laundry can be operated manually, using the controls located on the controller assembly. With the MASTER switch (1) set to ON, the AUTO/OFF/ MANUAL switch (2), as well as the DRAIN switch (3), LEVEL switch (4), and the HOT/COLD WATER switches (5 and 6) may be used to obtain whatever manual operation is desired.

1. With the MASTER switch (1) ON and AUTO/OFF/MANUAL switch (2) in OFF press unlock switch (7) and unlock door. Load the washer with up to 60 lbs of wash. Table 0007 00-1 lists the weight of various clothing items.

2. Check the air tank pressure gage (8) for a pressure of at least 60 psi (414 kpa). If pressure is lower than 60 psi, (414 kPa), refer to troubleshooting procedures.

3. Select the proper formula from FM 10-280.

NOTE

The washer DRAIN switch (3) must be in closed position before water inlet valves will operate. Use low level on wash, high level on rinse.

4. Set DRAIN switch to closed position and set (3) HOT WATER (5), COLD WATER (6), and LEVEL switch (4) for desired operation.

5. Set AUTO/OFF/MANUAL switch (2) to manual and manual timer (9) to time called for in formula.

6. Add proper supplies through soap chute (10). Rinse chute with water to remove remaining soap.

NOTE

Washer will continue to run indefinitely, when manual timer runs out, audible signal will sound and timer light (11) will come on, but washer will not stop agitating until AUTO/OFF/MANUAL switch (2) is set to OFF.

7. When signal goes off switch DRAIN (3) to OPEN and allow to drain. Set WATER (5 and 6) and LEVEL switch (4) for next desired operation, then position DRAIN switch (3) to CLOSED. This will enable the washing machine to fill with water of the proper temperature to the proper level.

8. Set manual timer (9) to time called for in formula.

9. Continue sequence until formula is completed.

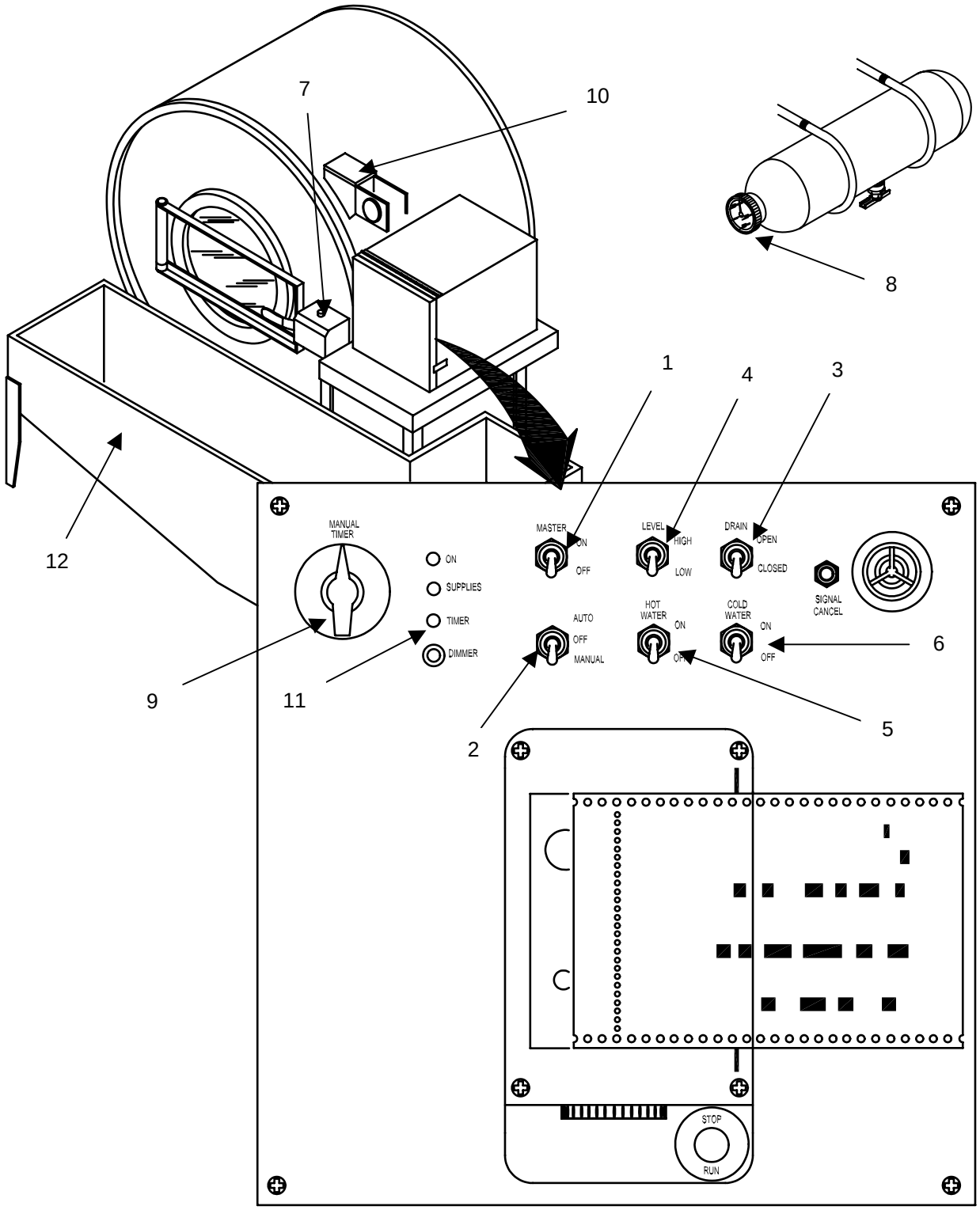
10. Upon completion of manual operation position AUTO/OFF/MANUAL switch (2) in OFF and set DRAIN switch (3) to OPEN and allow to drain.

11. Press unlock switch (8) on door lock cover and open door.

NOTE

Unlock switch (8) is interlocked with lever switches. If washing machine still contains water door will not unlock until washing machine has drained. This is a safety feature to protect operator from accidental scalding.

12. Transfer laundry to the wet wash bin (12).


7
10
8
1
4
3
12
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
MASTER
ON
OFF
LEVEL
HIGH
LOW
DRAIN
OPEN
CLOSED
SIGNAL CANCEL
AUTO
OFF
MANUAL
HOT WATER
ON
OFF
COLD WATER
ON
OFF
6
9
11
2
5
STOP
RUN

Automatic Washing M-85-200 Model Laundry.
The following procedures are for the operation of the M-85-200 Model Laundry only, using a pre-punched washer formula card to control the wash cycle. If it is necessary to change formulas, proceed as follows:

WARNING

Do not make or change electrical connections while the unit is in operation. The voltage generated by the engine—generator can cause death by electrocution. Keep moisture away from the engine—generator and keep the surrounding area dry when operating the unit. Failure to observe this warning may result in death by electrocution. Do not service the unit with fuel while the unit is in operation. Failure to observe this warning may result in serious injury or death to personnel.

WARNING

If EMERGENCY SHUTDOWN is required, pull out DC control circuit breaker on generator control panel (Refer to TM 5-6115-585-12 and familiarize yourself with the location of this control), or turn OFF 60 AMP main circuit breaker on power distribution panel to shut down all electrical power to the laundry unit. Failure to observe this warning may result in serious injury or death to personnel.

CAUTION

Door unlock switch is interlocked with other switches. If washing machine contains water, door will not unlock until washing machine has drained or damage to equipment may result. This is a safety feature to protect operator from accidental scalding.

1. Open front cover of washer control panel, and place Run/Stop knob (1) in stop position.

CAUTION

When removing/installing washer formula card, install from right side and always remove from left side of cycle timer. Do not remove washer formula card from right side as this may damage the card or cycle timer.

NOTE

Laundry formula cards are stored in a compartment on top of control panel.

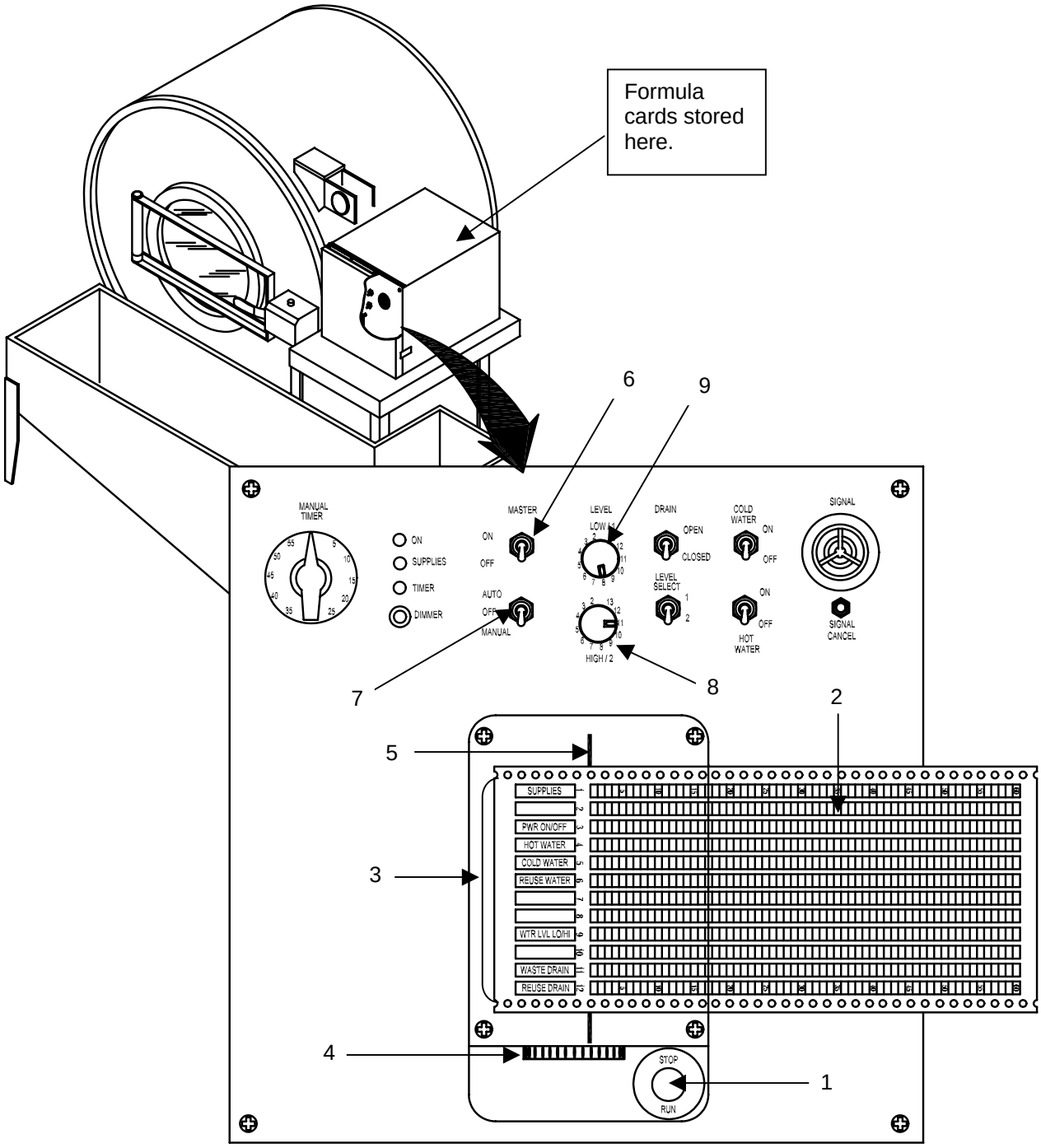
2. Insert left edge of card into right edge of card reader until cylinder control wheel engages card. Rotate wheel until hairline mark aligns with left edge of minutes on card.

3. Set MASTER switch (6) to ON.

4. Set AUTO/MANUAL switch (7) to OFF.

5. Turn LEVEL LOW/I (8) indicator to 8 to provide good agitation without floating clothes in the water.

6. Turn HIGH/2 (9) indicator to 11 to provide enough water for a thorough rinse.



To prepare the washer for an automatic wash cycle, proceed as follows:

1. Press door unlock switch (1), rotate handle and open door.

2. Load the washer with up to 60 lbs of wash. Table 0007 00-1 lists the weight of various clothing items. Close door and rotate handle.

3. Check the air tank pressure gage (2) for a pressure of at least 60 psi (414 kpa). If pressure is lower than 60 psi, (414 kPa), refer to troubleshooting procedures.

4. Refer to FM 10-280 for field laundry washing and decontamination formulas. Select proper washer formula card.

5. With Run/Stop knob (3) in STOP position and card with track assignment (4) to left, insert card into program timer control from the right side until first increment of card is below hairline start marker (5) on the face of the program timer. Turn Run/Stop knob (3) to RUN.

NOTE

When washing camouflage clothing, use warm water and mild detergent. Do not use chlorine bleach or starch on camouflage clothing.

6. Unlatch soap dispenser (6). Add soap and rinse chute with water.

NOTE

Every time you add supplies through soap dispenser, close cover after adding supplies. If cover is not closed, hot air will be vented causing water in washer to cool down.

7. Close and latch soap dispenser cover (6).

8. Place AUTO/OFF/MANUAL switch (7) in AUTO.

9. When SUPPLIES indicator light (9) and audible SIGNAL (10) activate, add supplies called for in washer formula into soap dispenser.

NOTE

When audible signal sounds, push SIGNAL CANCEL (!1) to stop. (If SIGNAL CANCEL is not pushed, audible signal will sound for 20 seconds and then stop).

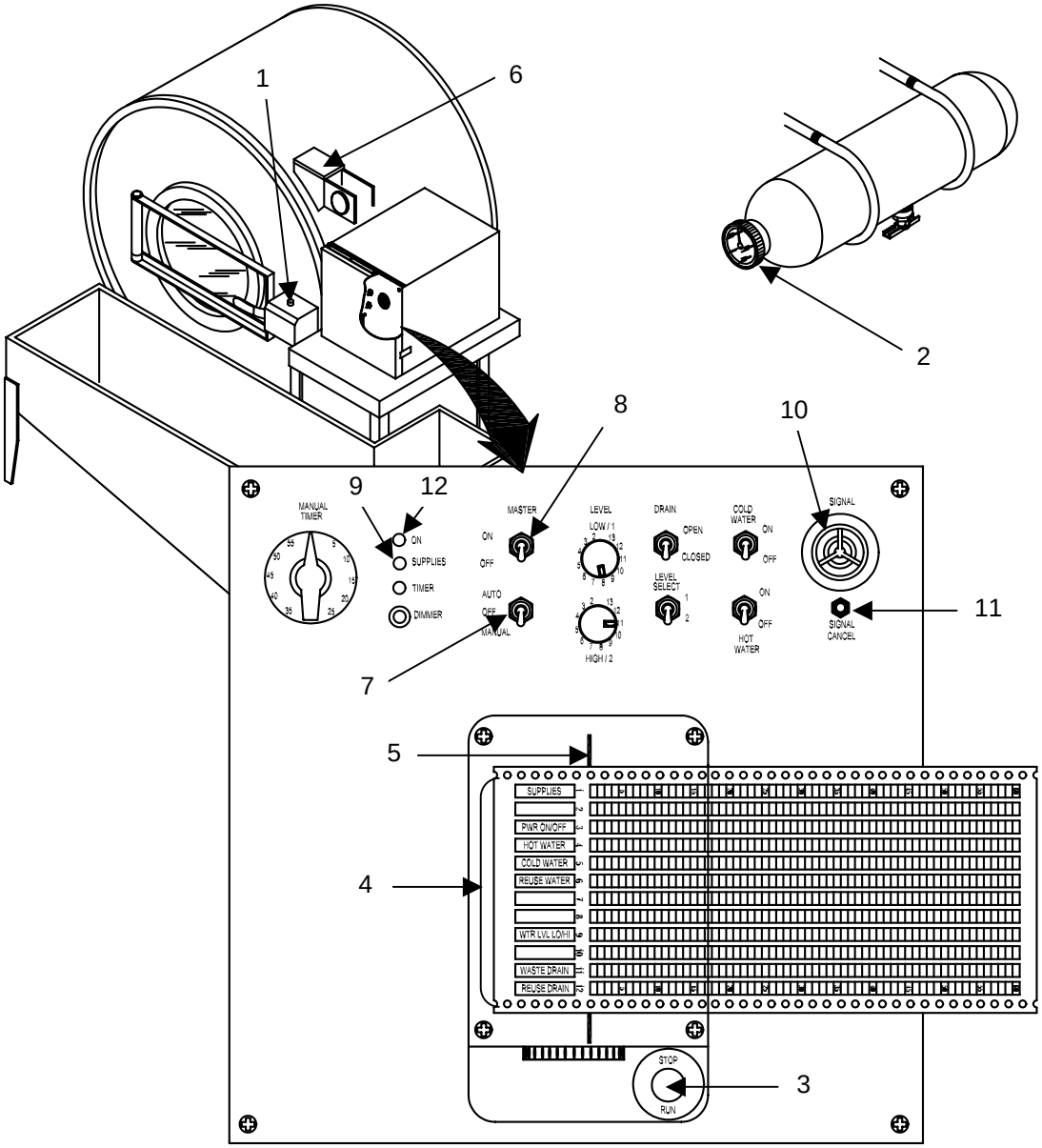
NOTE

At end of wash cycle, ON light will shut off.

10. When at the end of the wash cycle, the ON light (12) shuts off, turn AUTO/MANUAL switch (7) OFF.

11. Press the door unlock switch (1), rotate handle to open door.

12. Transfer laundry to the wet wash bin.



Manual Washing M-85-200 Model Laundry.

The M-85-200 Laundry can be operated manually, using the controls located on the controller assembly. With the MASTER switch (1) in ON position, the DRAIN switch (2) closed, and the AUTO/MANUAL switch (3) set to OFF, the LEVEL SELECT switch (4), HIGH/2 switch (5), and HOT/COLD WATER switches (6 and 7) may be used to obtain whatever manual operation is desired. The following steps are for manual operation of the M-85-200 Laundry.

WARNING

If EMERGENCY SHUTDOWN is required, pull out DC control circuit breaker on generator control panel (Refer to TM 5-6115-585-12 and familiarize yourself with the location of this control), or turn OFF 60 AMP main circuit breaker on power distribution panel to shut down all electrical power to the laundry unit. Failure to observe this warning may result in serious injury or death to personnel.

NOTE

Door unlock switch is interlocked with other switches. If washing machine contains water, door will not unlock until washing machine has drained. This is a safety feature to protect operator from accidental scalding.

1. Open front cover on washer control panel.
2. Set AUTO/MANUAL switch (3) to OFF.
3. Set MASTER switch (1) to ON.
4. Set LEVEL SELECT Switch (4) to 2.
5. Turn HIGH/2 indicator (5) to 11.

NOTE

3 meaning 3 inches of water, 11 meaning 11 inches of water etc.

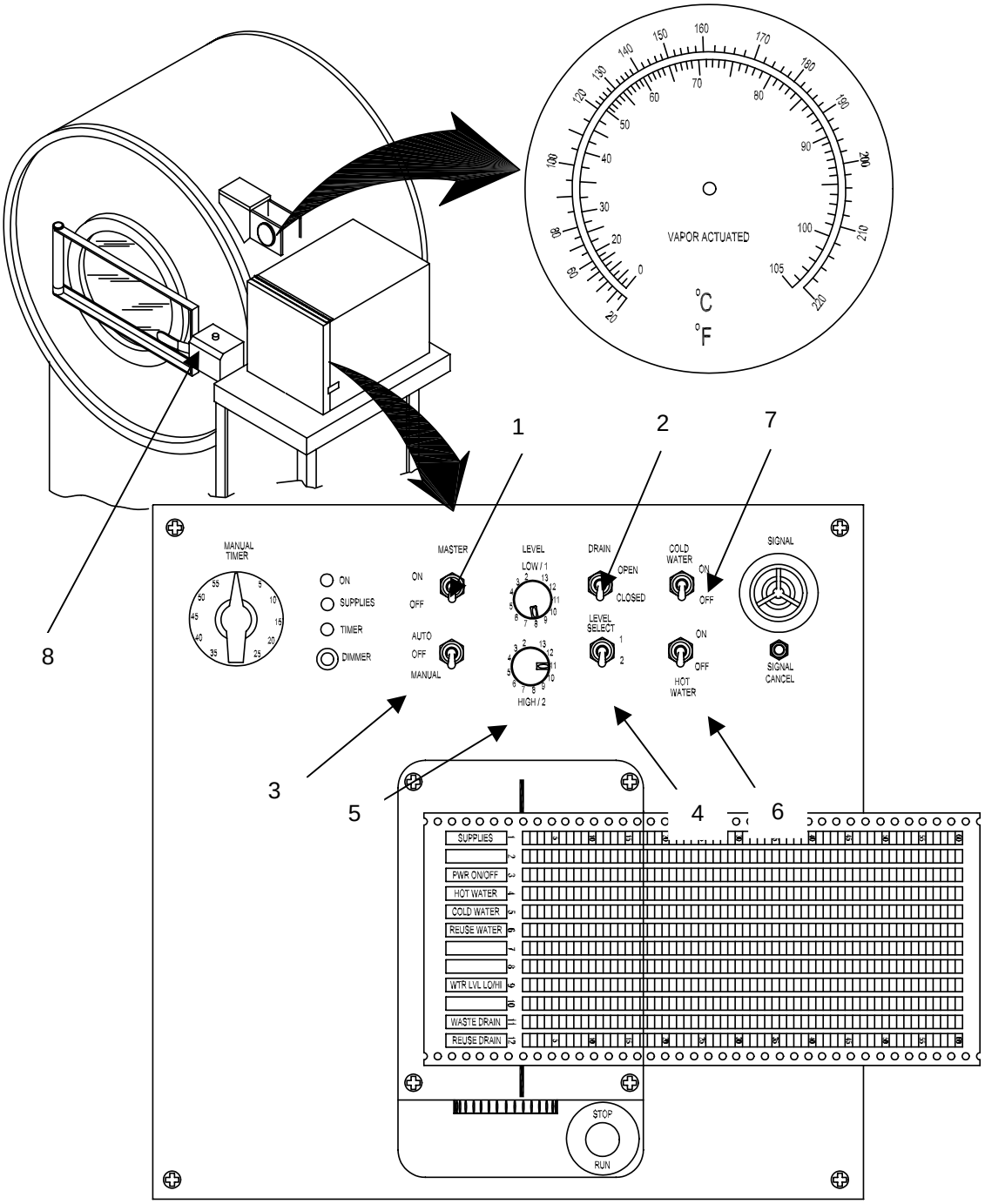
6. Press door unlock switch (8), rotate handle, and open door.
7. Load washer with up to 60 lbs (27. 2 kg) of wash. Table 0007 00-1 lists the weight of various clothing items. Close door and rotate handle.

NOTE

The washer DRAIN switch (2) must be in CLOSED position before water inlet valves will operate.

8. Set DRAIN switch (2) to CLOSED.
9. Set HOT WATER (6) and COLD WATER (7) switches for desired operation:

TEMPERATURE	HOT WATER	COLD WATER
WARM =	ON	ON
HOT =	ON	OFF
COLD =	OFF	ON



M-85-200

NOTE

When washing camouflage clothing, use warm water and mild detergent. Do not use chlorine bleach or starch on camouflage clothing.

10. Add proper amount of washing supplies through soap dispenser (1). Add water to rinse chute.

11. On MANUAL TIMER (2), TURN PAST 10, then set time to desired washing time.

12. Set AUTO/MANUAL switch (3) to MANUAL. This starts the wash cycle.

NOTE

Washer will continue to run indefinitely. Machine will not stop agitating until AUTO/MANUAL switch (3) is set to OFF.

13. When audible SIGNAL (4) sounds, and TIMER light (5) comes on, set DRAIN switch (6) to OPEN and allow water to drain. Set WATER (5 and 6) and LEVEL switch (4) for next desired operation, then position DRAIN switch (3) to closed. This will enable the washing machine to fill with water of the proper temperature to the proper level.

14. If additional washing cycles are needed, set HOT WATER (7), and COLD WATER (8) switches for next desired wash cycle.

15. On MANUAL TIMER (2), TURN PAST 10, then set time, to desired washing time.

16. When audible SIGNAL (4) sounds and TIMER light (5) comes on, set DRAIN switch (6) to OPEN.

Continue this sequence until all laundry is washed. After the last wash cycle is completed, and the washer has drained, proceed as follows:

1. Set AUTO/MANUAL switch (3) to OFF.

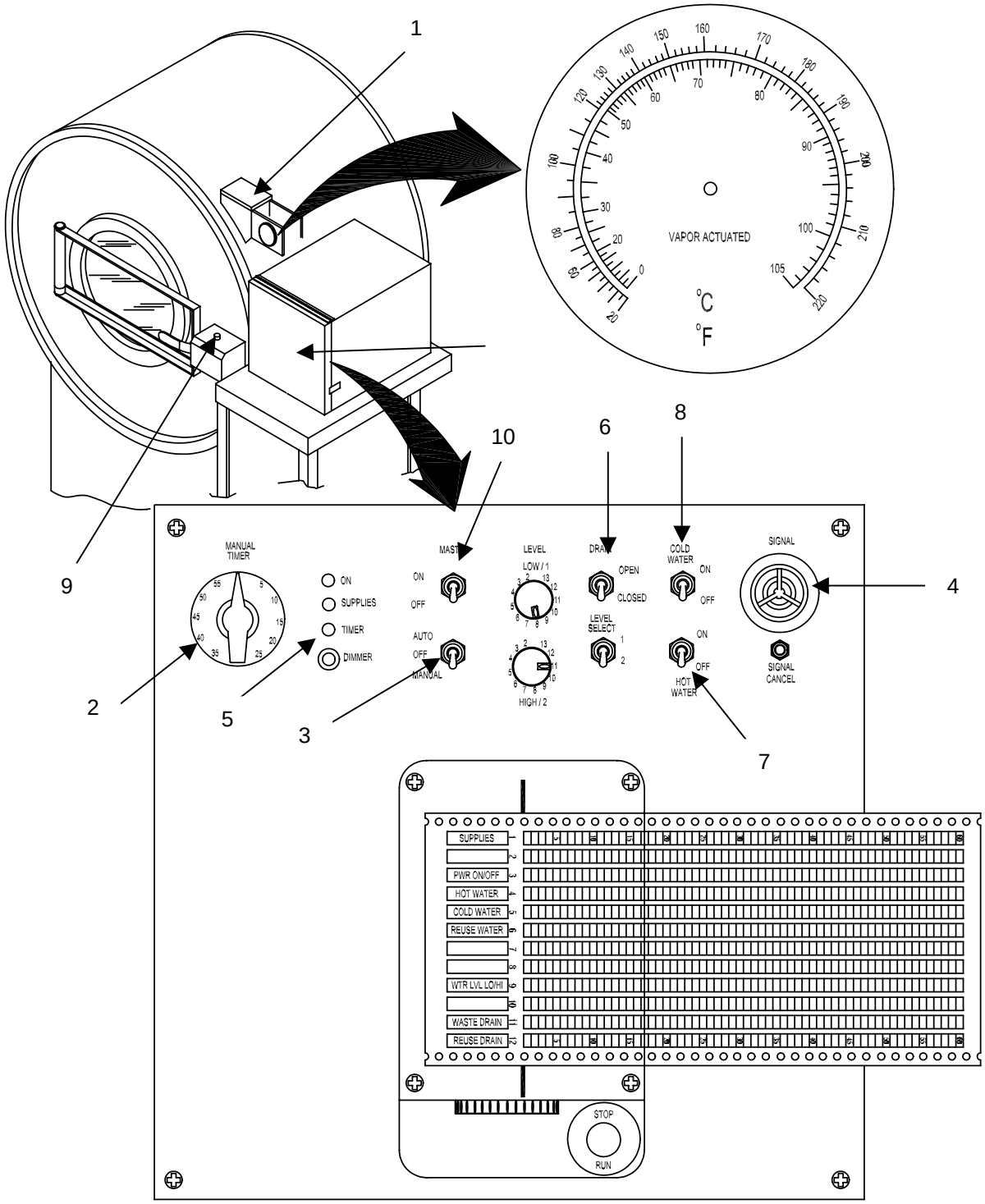
2. Press door unlock switch (9), rotate handle and open door.

3. Transfer laundry to wet wash bin.

4. Close door and rotate handle.

5. Turn MASTER ON/OFF switch (10) to OFF.

6. Close front cover on washer control panel.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TIMER
DIMMER
MASTER
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AUTO
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MANUAL
LEVEL
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HIGH / 2
DRAIN
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CLOSED
LEVEL SELECT
COLD WATER
ON
OFF
HOT WATER
ON
OFF
SIGNAL
SIGNAL CANCEL
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LO/HI
WASTE DRAIN
REUSE DRAIN
STOP
RUN

M85-200

Extracting.
The operation of the extractor is similar in all models of the M-85 Laundry.

CAUTION

Avoid rough handling of the extractor cover. Slamming the cover or attempting to open the cover before the internal lock releases will damage the equipment.

CAUTION

Ensure that laundry does not cover center hub before operating extractor.

1. Open the extractor lid (1).

2. Place 30 pounds (13.6 kg) of laundry (approximately one-half of a full load) from the wet wash bin into the extractor.

3. Distribute the load evenly around the basket for balance. Ensure laundry is completely inside the basket.

4. Close the extractor lid (1).

5. Set interval timer (2) to desired setting (normally 3 minutes). If the laundry is not fully extracted of water, repeat this procedure.

6. Pull out on EMERGENCY STOP ONLY button (3).

7. Press the PUSH TO START button (4). The lid (1) will lock, the LID LOCKED indicator light (5) will come on, and machine will spin.

WARNING

If an emergency exists, press EMERGENCY STOP ONLY for safety of personnel or equipment.

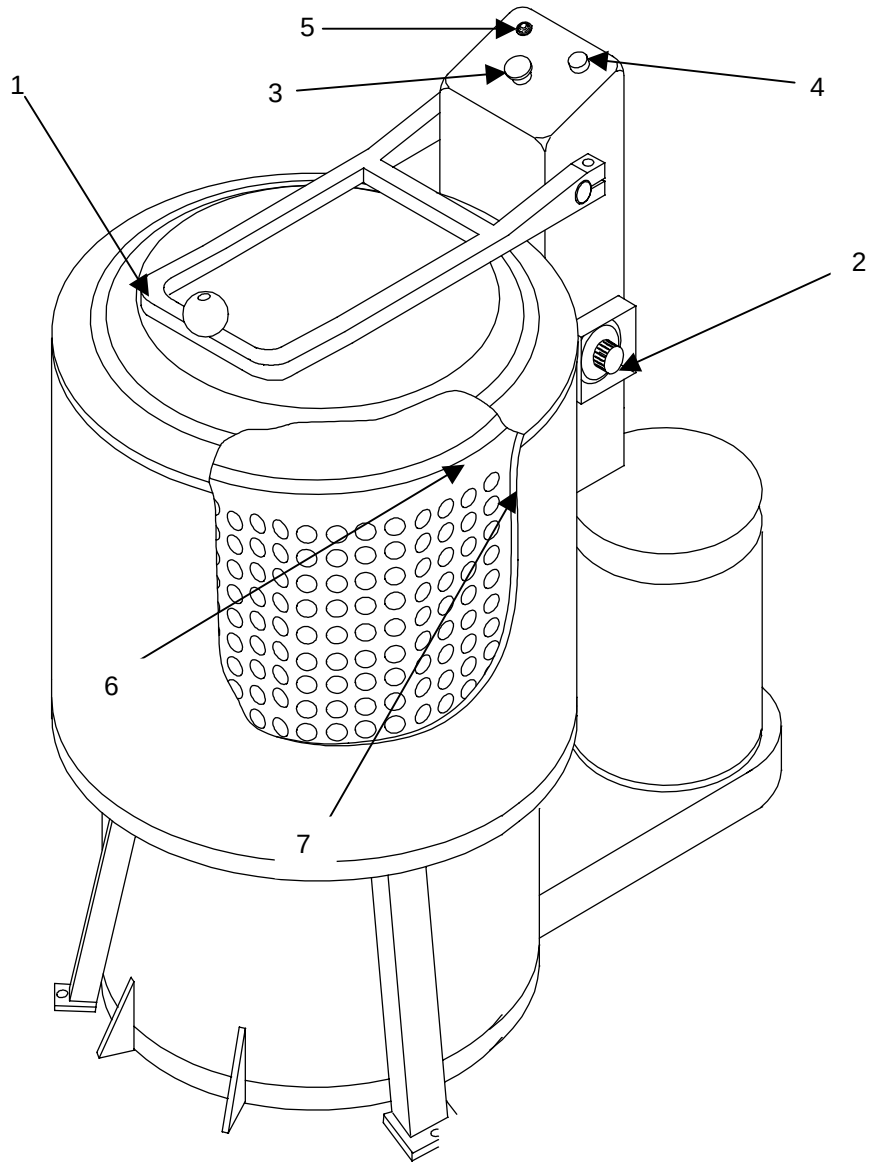
8. If the extractor vibrates excessively or is extremely noisy, or if something is caught between the basket and the curb, push the EMERGENCY STOP ONLY button (3).

9. When the LID LOCKED indicator light (5) goes out, open the lid (1) and rebalance the load. Remove anything that may have dropped between the basket (6) and the curb (7).

10. To restart the extractor, pull out the EMERGENCY STOP ONLY button (3), close the lid (1), and press the PUSH TO START button (4).

11. When extraction is completed, the basket (6) will stop and the LID LOCKED indicator light (5) will go out.

12. Open extractor lid and transfer laundry to dryer.



Dryer Operation. The operation of the dryer is similar in all models of the M-85 Laundry.

WARNING

If, when opening dryer door, tumbler barrel still rotates, sensing switch (on front door) needs to be adjusted. If sensing switch is not adjusted, personnel could be injured.

1. Open dryer door (1).
2. Transfer laundry from extractor and place no more than 30 pounds (13.6 kg) into the dryer.
3. Close dryer door (1).

4. Determine exact temperature control setting for various types of clothing by referring to FM 10-280, Mobile Field Laundry Formulas. Common setting for cotton items is 250^0 F (121^0 C), wool items 200^0 F (93^0 C) and battle dress uniforms 130^0 F (54^0 C). Set temperature control (2) accordingly.

CAUTION

Turn sequential timer clockwise. Turning counter clockwise could damage equipment.

5. Set ON/OFF SEQUENTIAL TIMER (3) drying time to approximately 10 minutes, and turn timer clockwise.

6. Press START button (4) on dryer.

7. When buzzer sounds, turn ON/OFF SEQUENTIAL TIMER (3) to OFF, push STOP/RESET button (5), open dryer door (1), and check laundry for dryness. If laundry is dry, remove it.

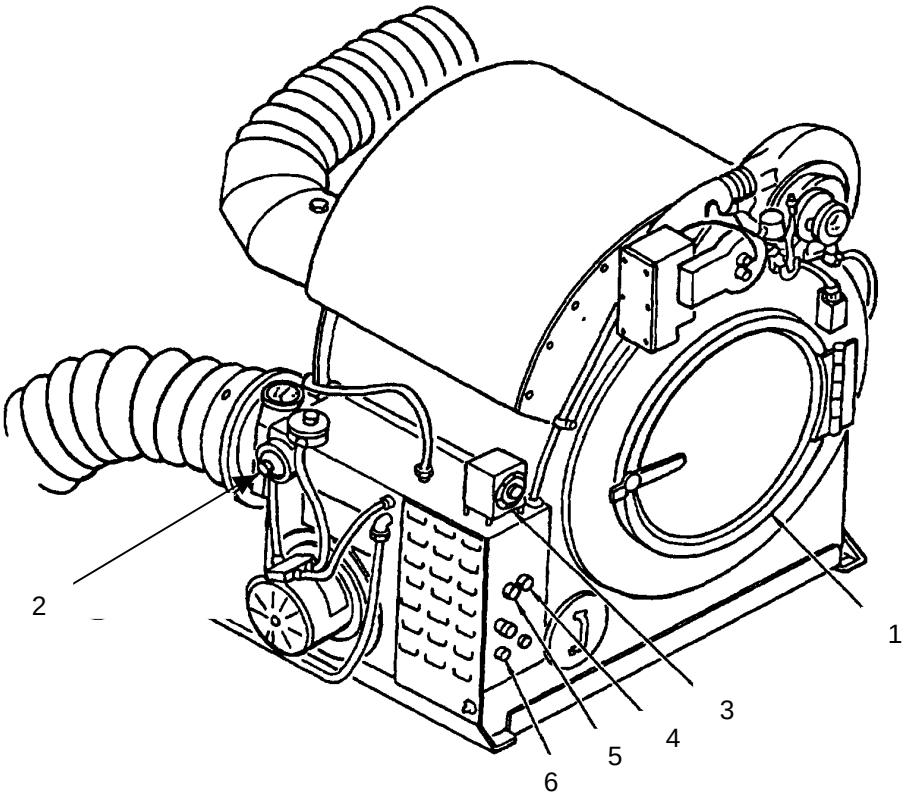
8. If laundry is not dry, do substeps below:

9. Set ON/OFF SEQUENTIAL TIMER (3) to 3 minutes.

10. Press START button (4) on dryer.

11. Repeat 3-minute cycle(s) until laundry is dry.

12. Transfer laundry from dryer and place in dryer bin.



LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
SHUTDOWN AND PREPARATION FOR MOVEMENT

M85 Series Laundry Shutdown.
Shutdown procedures are similar for all models of the M85 Laundry. The supervisor must determine what shutdown procedures must be performed. This will depend on the mission, weather, and environmental conditions. For example, normal overnight shutdown procedures may have to be supplemented when inclement weather in the form of rain, wind, dust, etc., are expected. Additional procedures are necessary if operating in temperatures below 32^0 F, or if the laundry is to be prepared for movement or storage. For shutdown procedures under unusual environmental conditions refer to work package 0009 00, Operation under Unusual Conditions. Perform the procedure directed by your supervisor.

1 Shut down operation for less than 4 hours with equipment remaining set up, and temperature is expected to be above 32^0 F.

Use these procedures to shut down the laundry for periods of less than 4 hours, in situations where equipment is to remain in place and connected, and temperatures are expected to be above 32^0 F.

2 Shut down operation for more than 4 hours and/or when temperature is expected to be below 32^0 F during down time.

Use these procedures to shut down the laundry in situations where it is to remain in place and the temperature is expected to fall below 32^0 F during down time.

3 Preparation for movement or storage.

Use these procedures when preparing the laundry unit for movement or storage.

WARNING

Exhaust ducts are hot. Avoid touching exhaust ducts during shutdown to prevent burns.

WARNING

Do not disconnect QD couplings while water system is pressurized. Hose end may whip causing injury to personnel and damage to equipment.

WARNING

The laundry components are heavy. To avoid injuries, two persons are required to move and load components.

1 Shut down operation for less than 4 hours with equipment remaining set up, and temperature is expected to be above 32^0 F.

a. Turn washer control panel (1) switches to OFF.

b. Set load limit switch (2) on water heater to OFF.

c. Close fuel valve (3) on water heater. (Turn clockwise to close valve).

WARNING

The water heater produces scalding hot water. Be very careful when touching any part of the water heater to avoid injury.

d. Set toggle switch (4) on water pump to OFF.

e. Press STOP RESET button (5) on dryer.

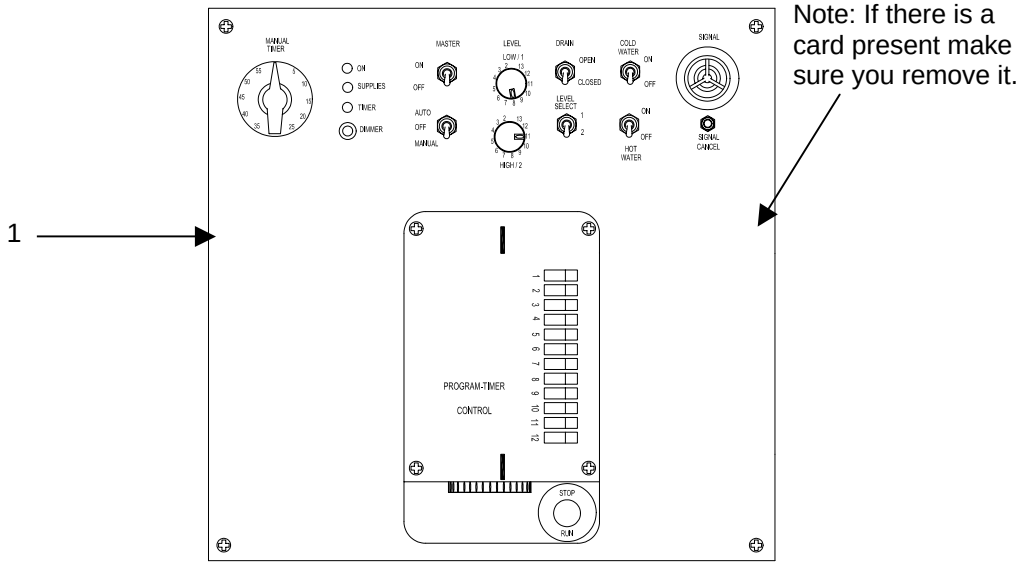
f. Close fuel valve (6) on dryer. (Turn clockwise to close valve.)

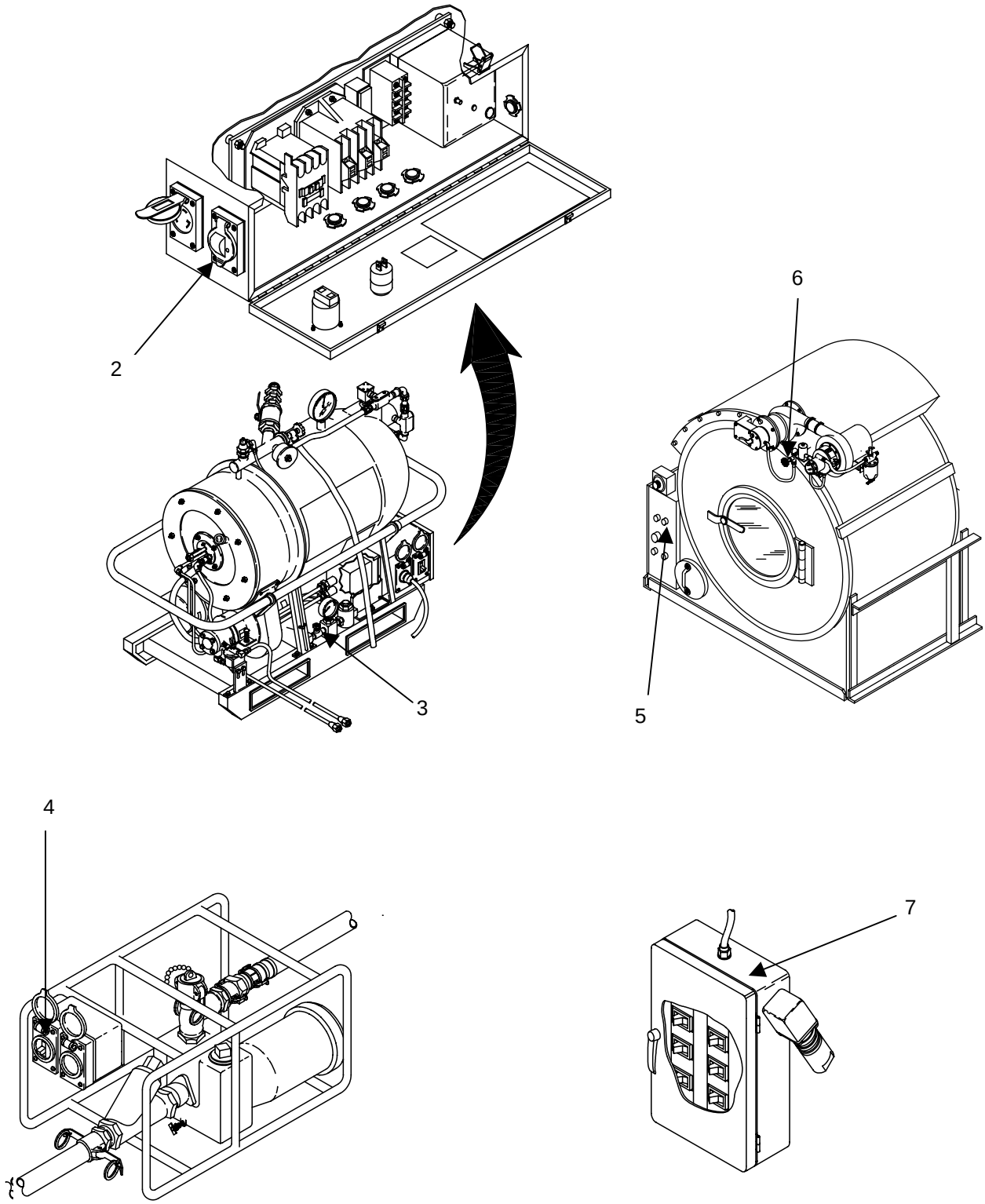
g. Switch all circuit breakers in the circuit breaker box (7) to OFF.

h. Shut down generator as described in TM 5-6115-585-12.

NOTE

Additional steps may be necessary to protect the equipment from rain, wind, dust or flooding. Refer to work package 0009 00, Operation Under Unusual Conditions for applicable procedures.




2
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2 Shut down operation for more than 4 hours and/or temperature is expected to fall below 32^0 F during down time.

a. Perform procedure **1**

WARNING

The water heater produces hot water. Be very careful when attaching hose and draining the water heater to avoid injury.

b. Uncoil and connect the water hose (1) to the drain valve (2) on the bottom of the water heater.

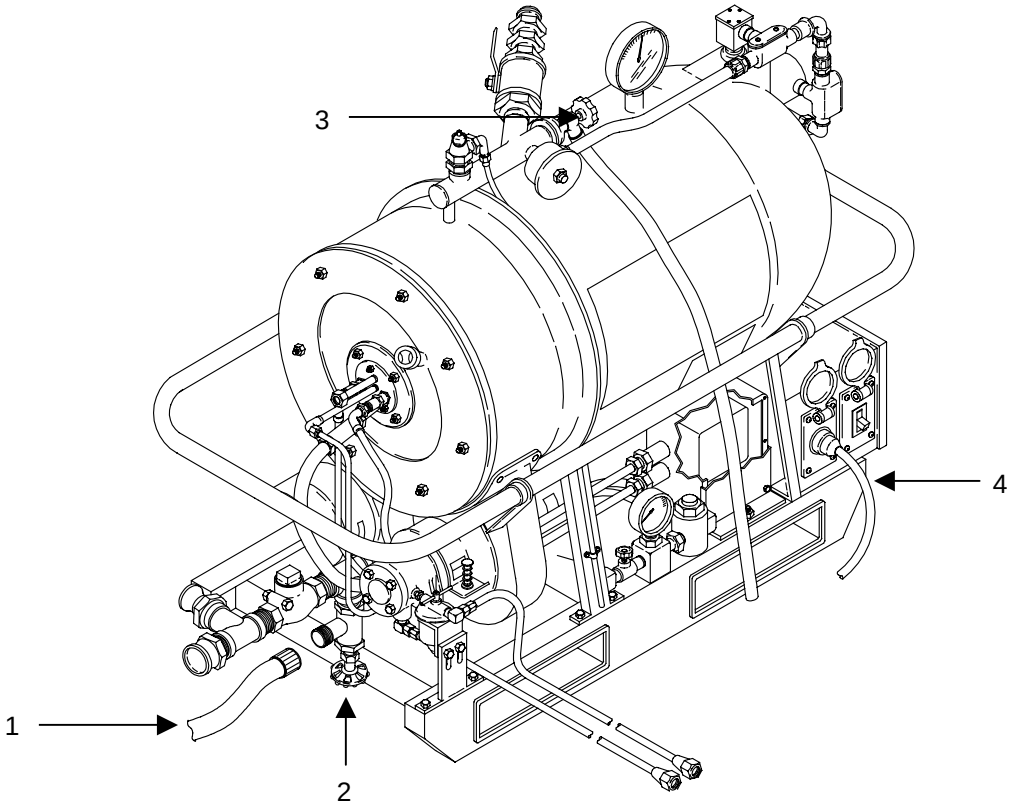
c. Open the drain valve (2) carefully.

d. Open the vent valve (3) on top of the water heater.

e. When water has stopped draining, disconnect the water hose (1) and store under water heater.

f. Leave drain valve (2) and vent valve (3) open.

g. Disconnect power distribution cable (4) from the water heater.



2 - continued

h. Disconnect power distribution cable (1) from the water pump.

WARNING

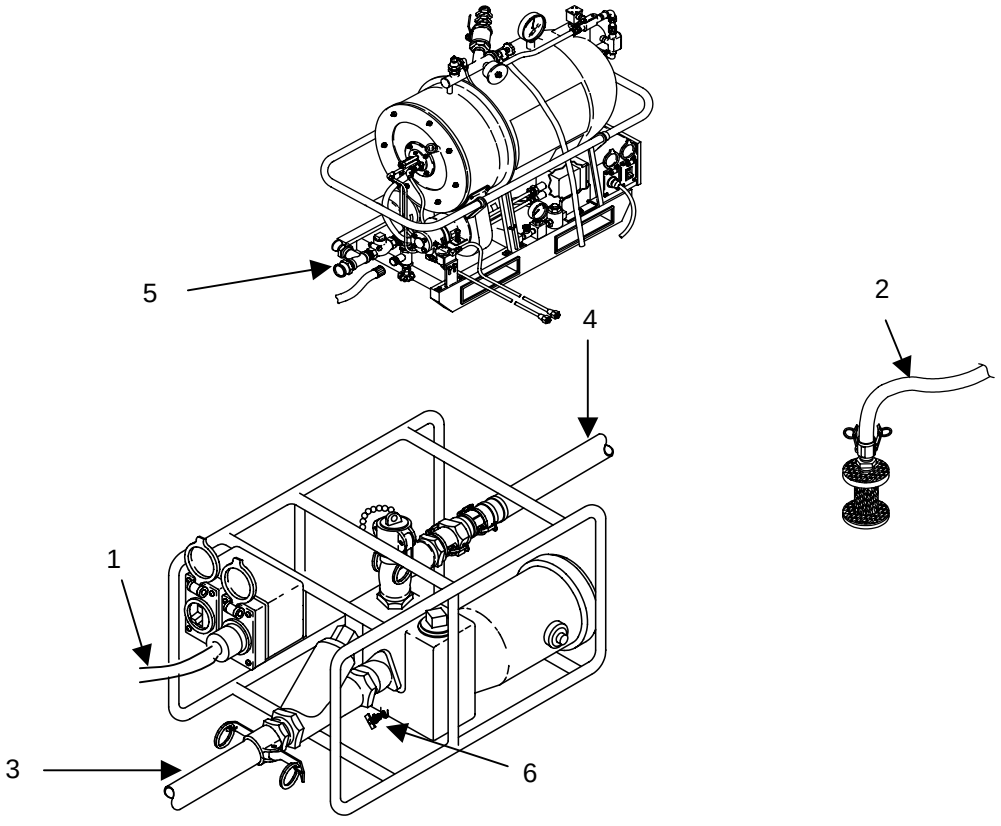
Do not disconnect QD couplings while water system is pressurized. Hose end may whip causing injury to personnel and damage to equipment.

i. Remove suction strainer (2) from water source and disconnect from hose.

j. Disconnect, and drain water hose from coupling half (3) on inlet side of water pump.

k. Disconnect, and drain water hose from coupling half (4) on outlet side of water pump and coupling half (5) on water heater inlet.

l. Open the drain cock (6) on the bottom of the water pump. When water has drained, lift one side of the pump about 6 inches off the ground and hold until any additional water has drained. Repeat this on each side of the pump. Leave drain cock open. Set water pump onto trailer.



2 - continued

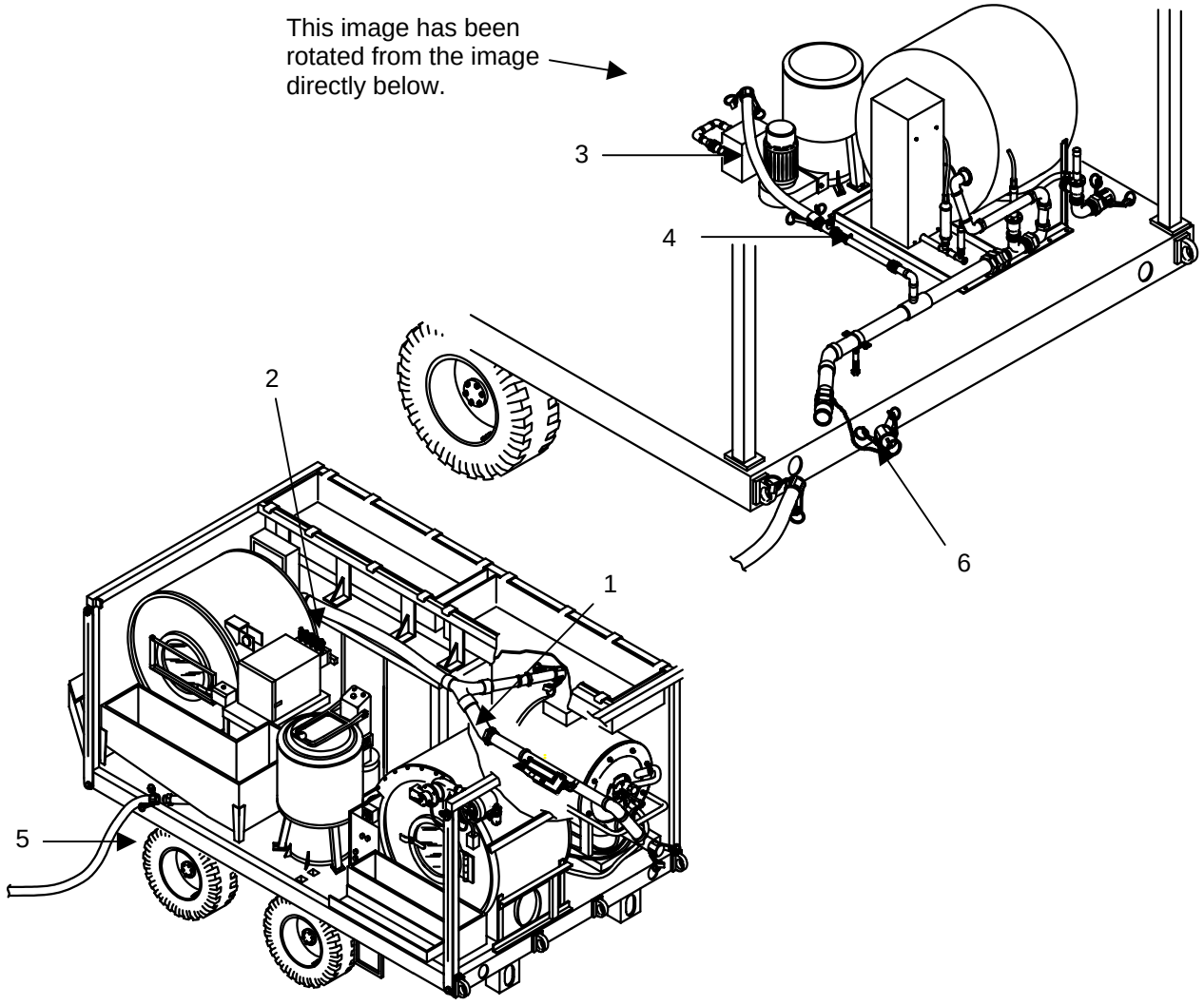
m. Disconnect, and drain water hose from coupling half on water heater Y coupling (1) and washer inlet coupling (2).

n. Disconnect the water hose from coupling half (3) on extractor. Leaving the other end of the hose connected to the drainpipe (4), lift the disconnected end and let the water drain from the hose. Disconnect other end and place hose under trailer and install dust caps on drains.

o. Disconnect and drain water hose from washer bin (5). Coil hose, install dust cap and place under trailer.

p. Disconnect and drain water hose from main drain (6). Coil hose, install dust cap and place under trailer.

q. Coil freshwater hoses, install dust cap and set aside.



2 - continued.

r. Check pressure gage (1) on washer air tank (2). It should read at least 90 psi. If the pressure is lower, start the generator as described in TM 5-6115-585-12 to recharge the system. If pressure does not rise, refer to troubleshooting procedures.

s. Remove cap (3) from washer recycle drain.

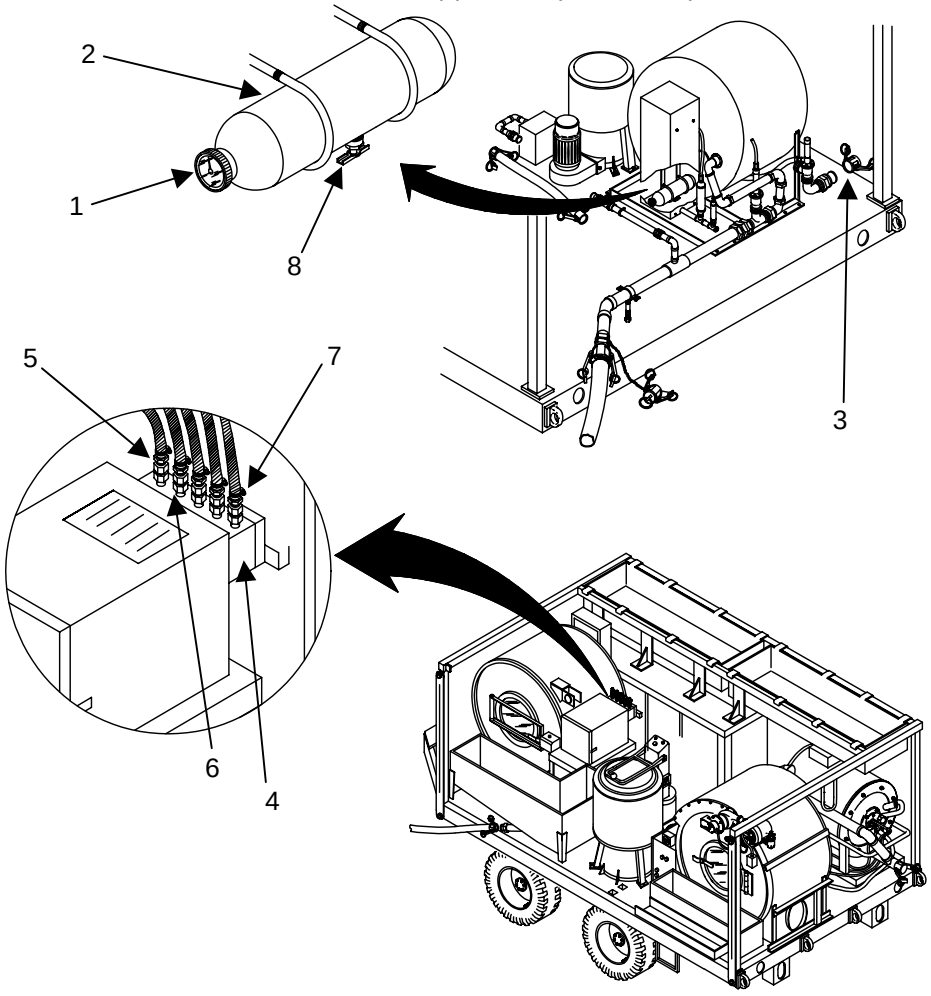
t. On air manifold (4) turn yellow arrow on the hoses labeled HOT INTAKE (5), COLD INTAKE (6), and RECYCLE DRAIN (7) 90^0 to the right and back, three times.

u. Reinstall cap (3) onto recycle drain.

v. Open the drain cock (8) under the washer air tank (2). Leave drain cock open.

x. Place tarpaulin cover over trailer and secure.

y. To prevent fuel contamination, cover drum(s) with tarpaulin and place cans under trailer.



3 Shut down the laundry for movement or storage.

a. Perform procedure **2** except the last two steps.

WARNING

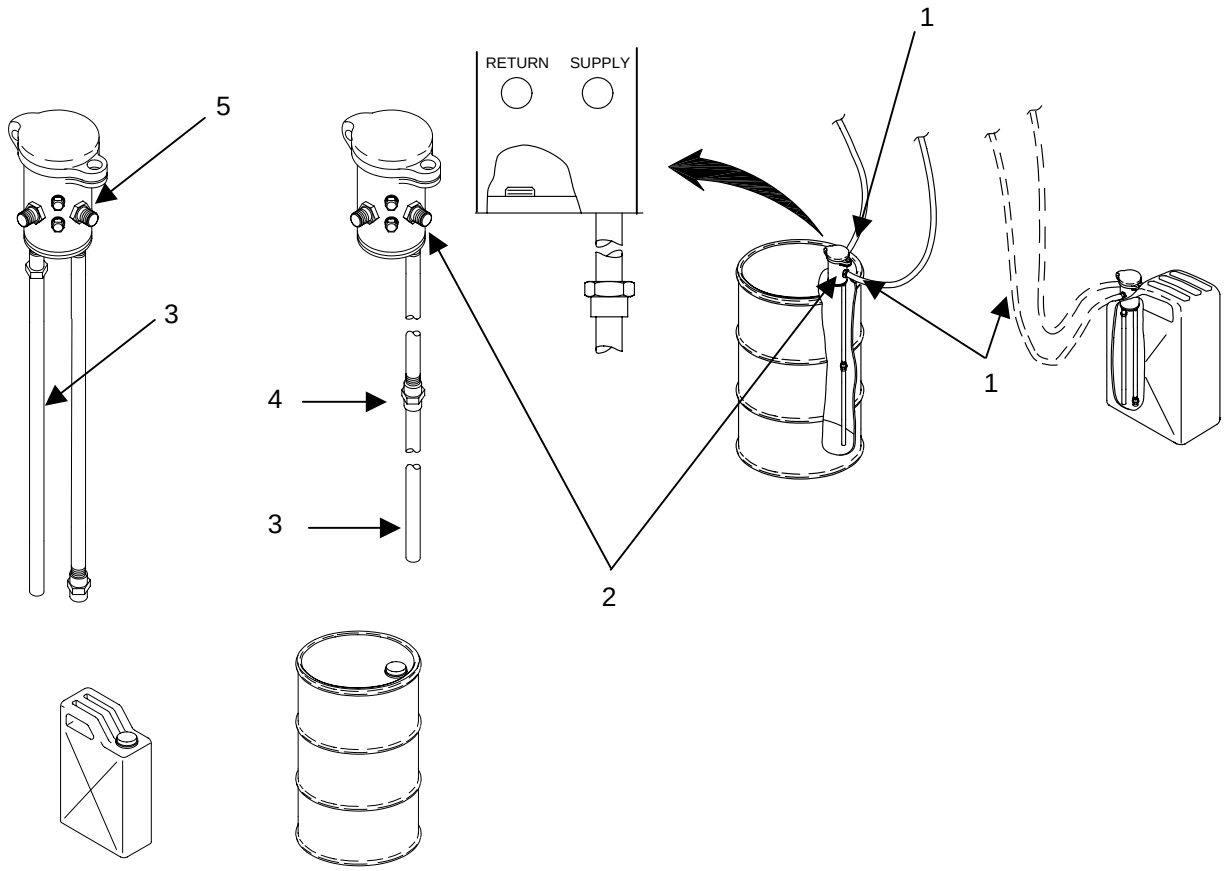
Ensure that fuel is drained into proper containers and that no open flame is being used when the fuel lines are disconnected and drained. Serious injuries could result from fire, or explosion.

b. Disconnect fuel lines (1) from drum fill adapters (2) and drain into containers.

c. Remove drum fill adapters (2) from 55-gallon (208 liter) drum or 5-gallon (19 liter) military gas can.

d. Remove drum extension (3) from adapter piping coupling (4) if 55-gallon (208 liter) drum was

used, and install extension on return outlet (5) of drum fill adapter (2).



3 - continued

e. Install two water pump tiedowns (1). (These are stored in the toolbox under the dryer.)

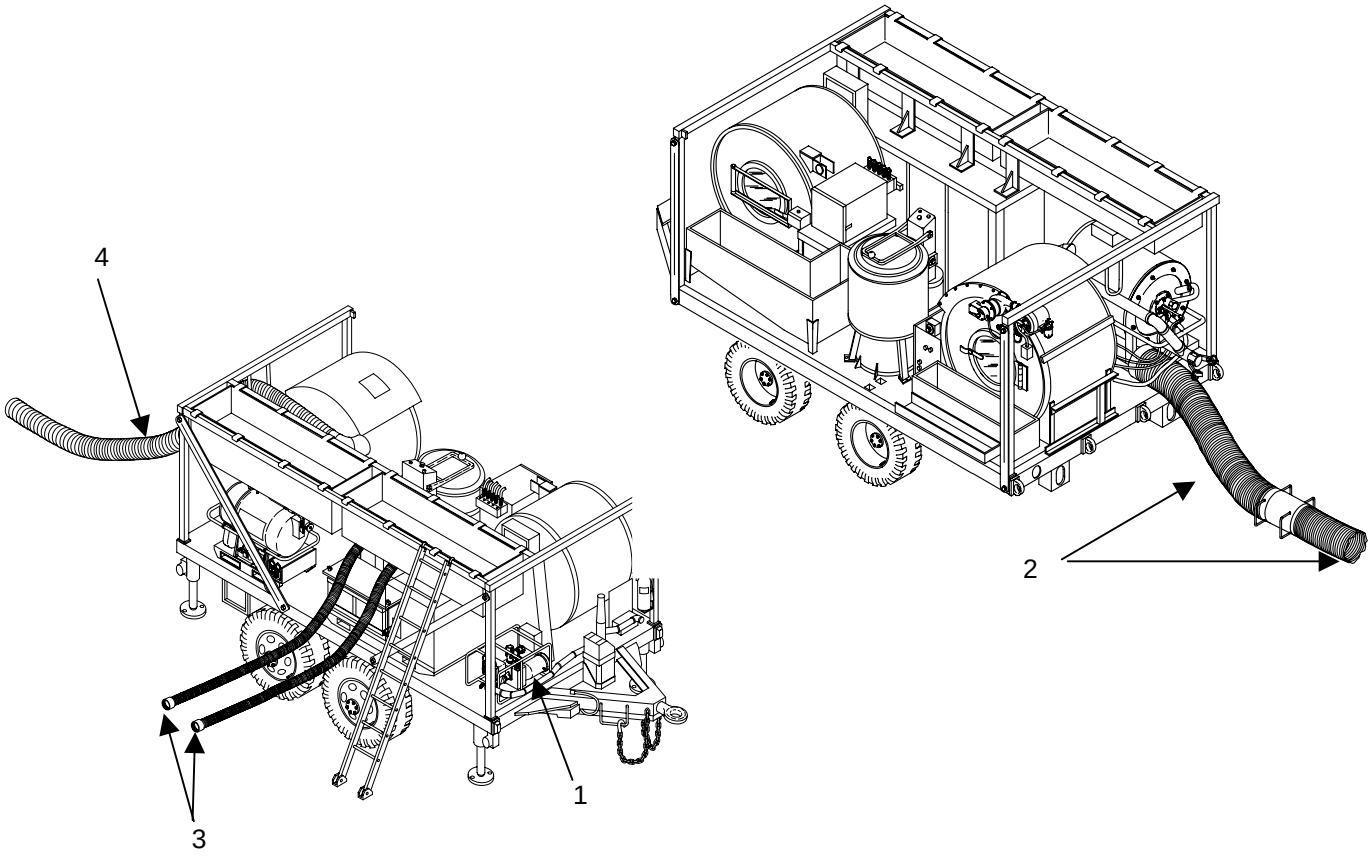
WARNING

Exhaust ducts are hot. Avoid touching exhaust ducts during shutdown to prevent burns.

f. Remove water heater exhaust ducts (2).

g. Disconnect generator exhaust hoses (3).

h. Disconnect dryer exhaust hose (4).



3 - continued

WARNING

Ensure that the generator has been shut down before the distribution cable is disconnected. Serious injuries or electrocution could result.

i. Disconnect air duct hose (dryer lint exhaust) (5) from dryer. Compress and fasten hook inside duct hose. Store inside dryer bin (6) of dryer.

WARNING

The laundry components are heavy. To avoid injuries, two persons are required to separate and load the dryer metal exhaust hoses.

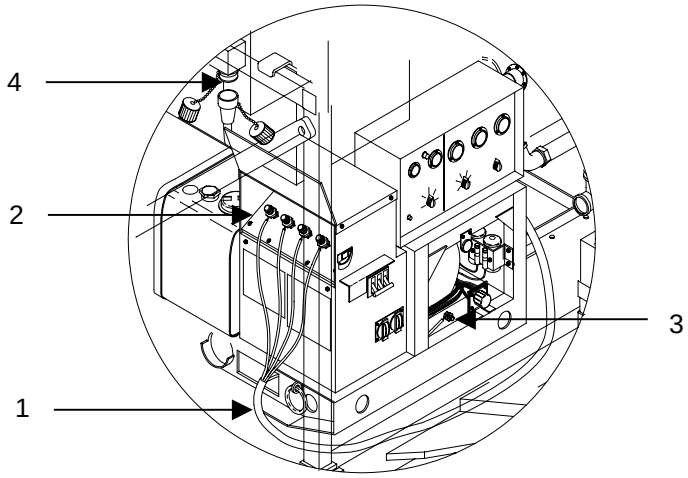
j. Store dryer metal exhaust hose on center of trailer using straps (8) on the trailer bed to secure.

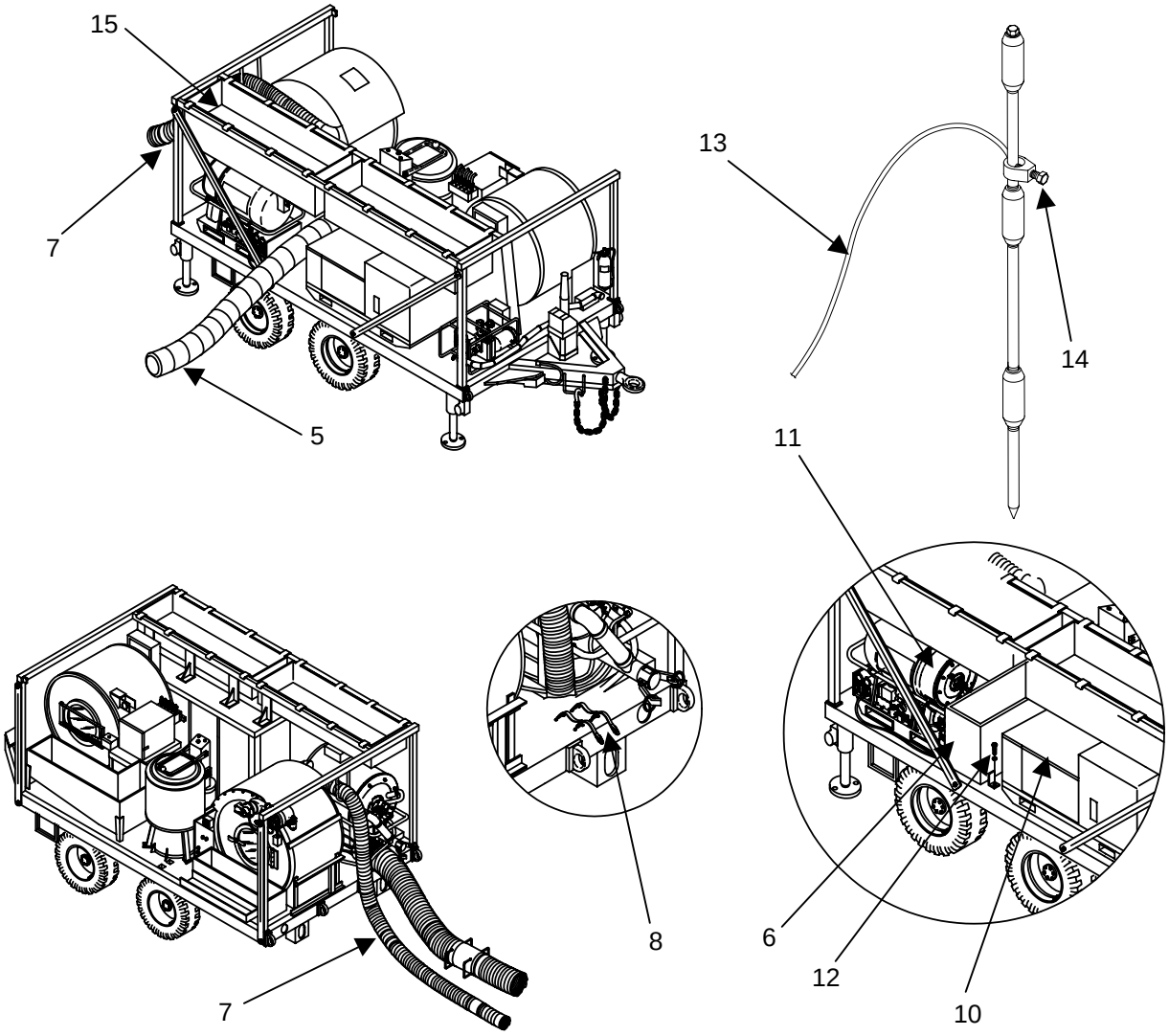
k. Position the dryer bin (6) on trailer between generator (10) and water heater (11).

l. Install four hexagon head cap screws with lock washers (12) to secure bin to trailer. (Hardware in toolbox)

m. Remove bare copper wire (13) from clamp on ground rod (14) and store in hose basket (15).

n. Remove ground rod (14) from ground. Disassemble and store in hose basket (15).





WARNING

The laundry components are heavy. To avoid injuries, two persons are required to move and load components.

o. Remove tarpaulin (1), two struts (2), and workstand support brackets (2) from hose basket (4) and set aside.

p. Pack the hose baskets (4) with the following items:

Front Hose Basket	Rear Hose Basket
Generator exhaust hoses (2 each)	Water heater exhaust hoses (2 each)
Drain Hose, 8ft, 1 ½" dia Extractor to Drain	Ground Rod Assembly
Water hoses, 25 ft, 1 ½" dia (2 each):	Drain Hose, 25 ft, 2 ½" Main Drain
Suction strainer to water pump	Drum adapters (2 each)
Water pump to water heater	Power Distribution Cable, Water Pump to Heater
Suction Strainer	Water hoses, 25 ft, 1 ½" dia Washer bin to drain field
Platform footings (8 each)	

q. Secure straps on hose basket to secure contents.

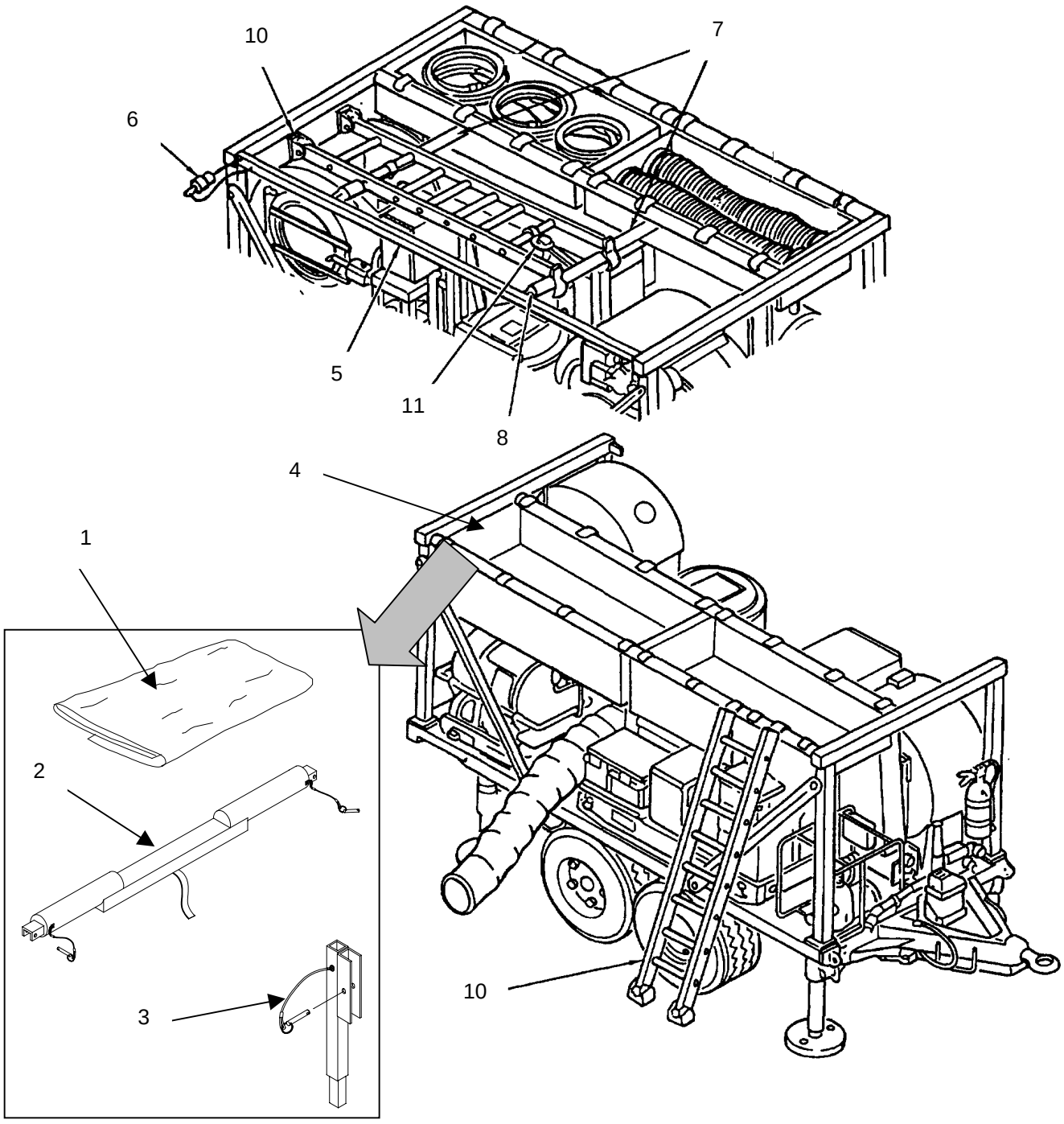
WARNING

Be careful when installing pins into the left beam and struts to avoid injuries from pinched fingers and hands.

r. Position left beam (5) on front and rear frame and secure with pins (6).

s. Position two struts (7) between left and center beam, with cable attaching rivets (8) facing the front of the trailer, and secure with pins (9).

t. Place ladder (10) into recessed areas on struts and secure with straps (11).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3 - continued

WARNING

The platform components are heavy. To avoid injuries, two persons are required to move and load components.

u. Remove one-step stairs (2 each) (1) and place in wet washer bin (2).

v. Remove two-step stairs (3) and place in front of circuit breaker panel (4).

w. Remove short platform (5) and set aside.

x. Position washer and dryer platforms on side (6) and remove quick release pins (7) from platform brace.

WARNING

Be careful when installing pins into the left beam and struts to avoid injuries from pinched fingers and hands.

(1) Fold ends of platform in and install quick release pins (7).

(2) Position the dryer platform on the trailer (8), legs facing roadside.

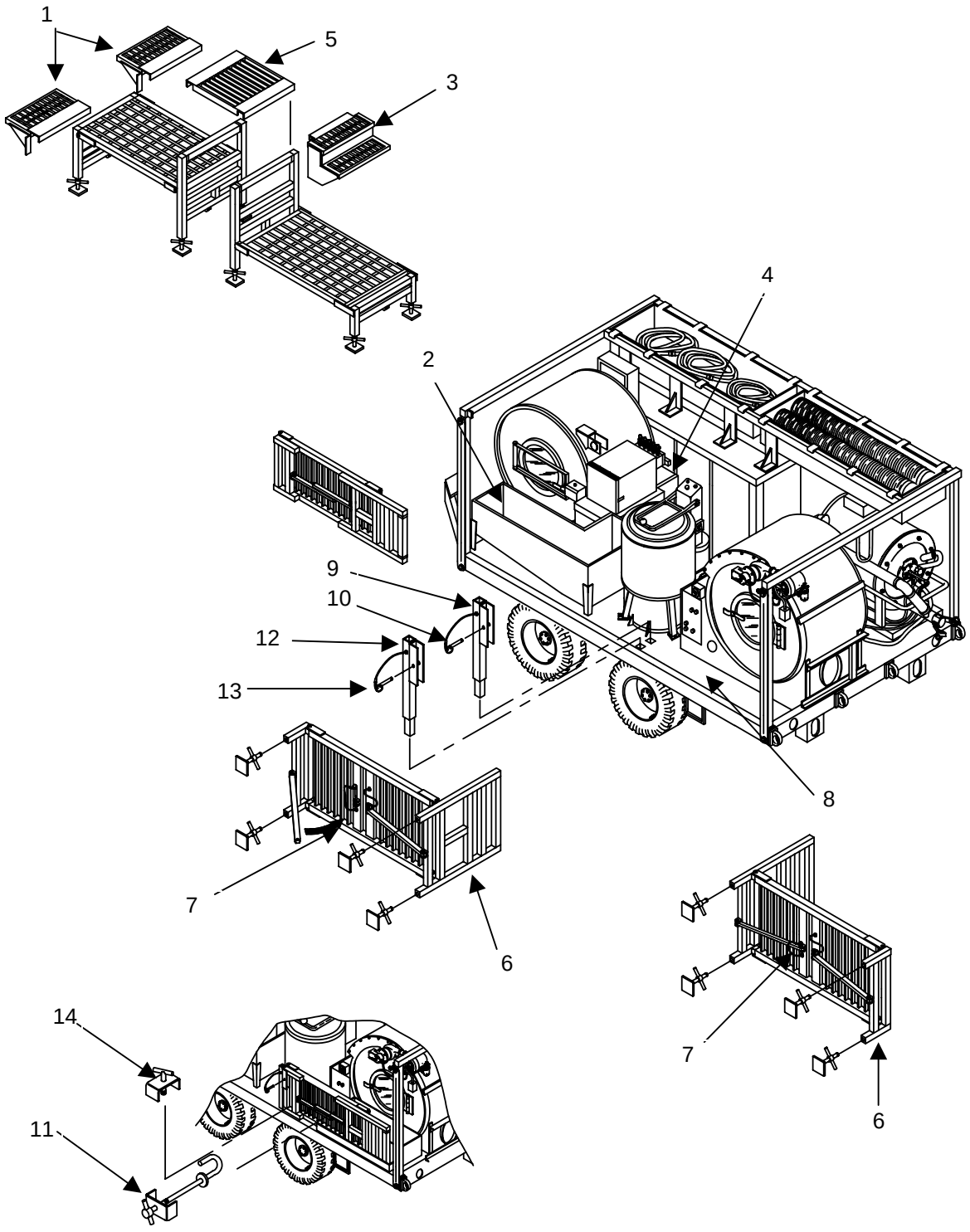
(3) Install rail assembly (9) upright with quick release pin (10). (Pinhead toward curbside.)

(4) Position short platform (5) on trailer (8) and install long clamp (11).

(5) Position the washer platform on trailer (8), legs facing curbside.

(6) Install rail assembly (12) upright with quick release pin (13). (Pinhead toward street side.)

(7) Install short clamp (14) on washer and dryer platforms.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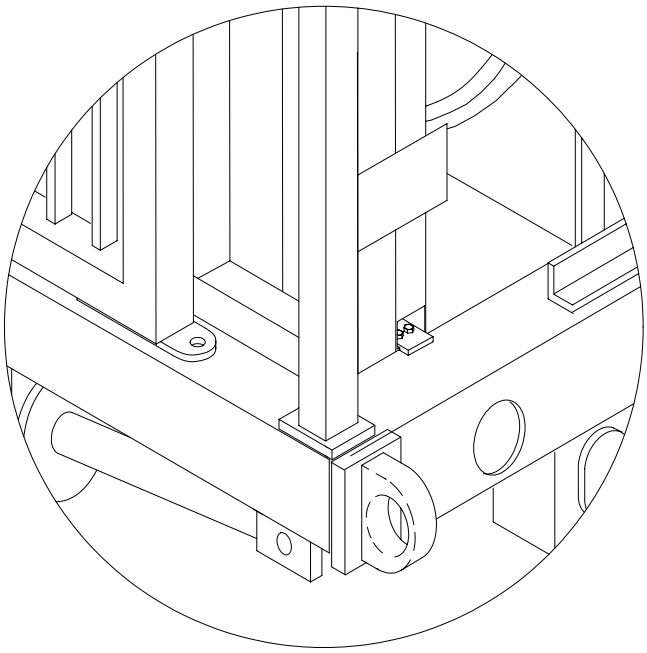


3 - continued

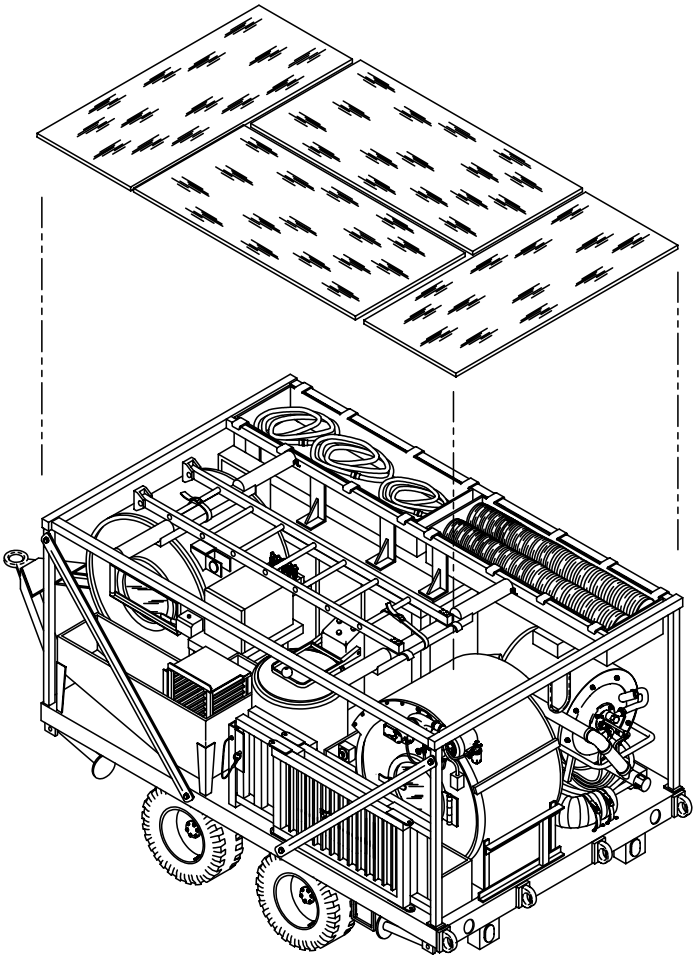
WARNING

Be careful when installing the tarpaulin support frames to avoid injuries from pinched fingers and hands.

(8) Rotate tarpaulin support frames (1) up and install bottom bolts, washers, and nuts (2). (Hardware in toolbox). Tighten securely.

NOTE

To prevent sagging of the tarpaulin caused by accumulated rainwater, plywood sheets may be laid over the top frame as shown.



(9) Position tarpaulin (3) on top of trailer frame (4) and unfold.

(10) Identify front (labeled) of tarp. Step up on front of trailer. Place tarp front center.

(11) Position tarp on top of trailer frame and drop sides over side of trailer.

(12) Insert first (5) and second laces (6) on top of corner through first (7) and second (8) grommet.

(13) Insert second lace (6) up through loop in first (5) lace.

(14) Pull second lace (6) tight.

(15) Insert third lace (9) through third grommet (10) and through loop in second (6) lace.

(16) Pull third lace (9) tight.

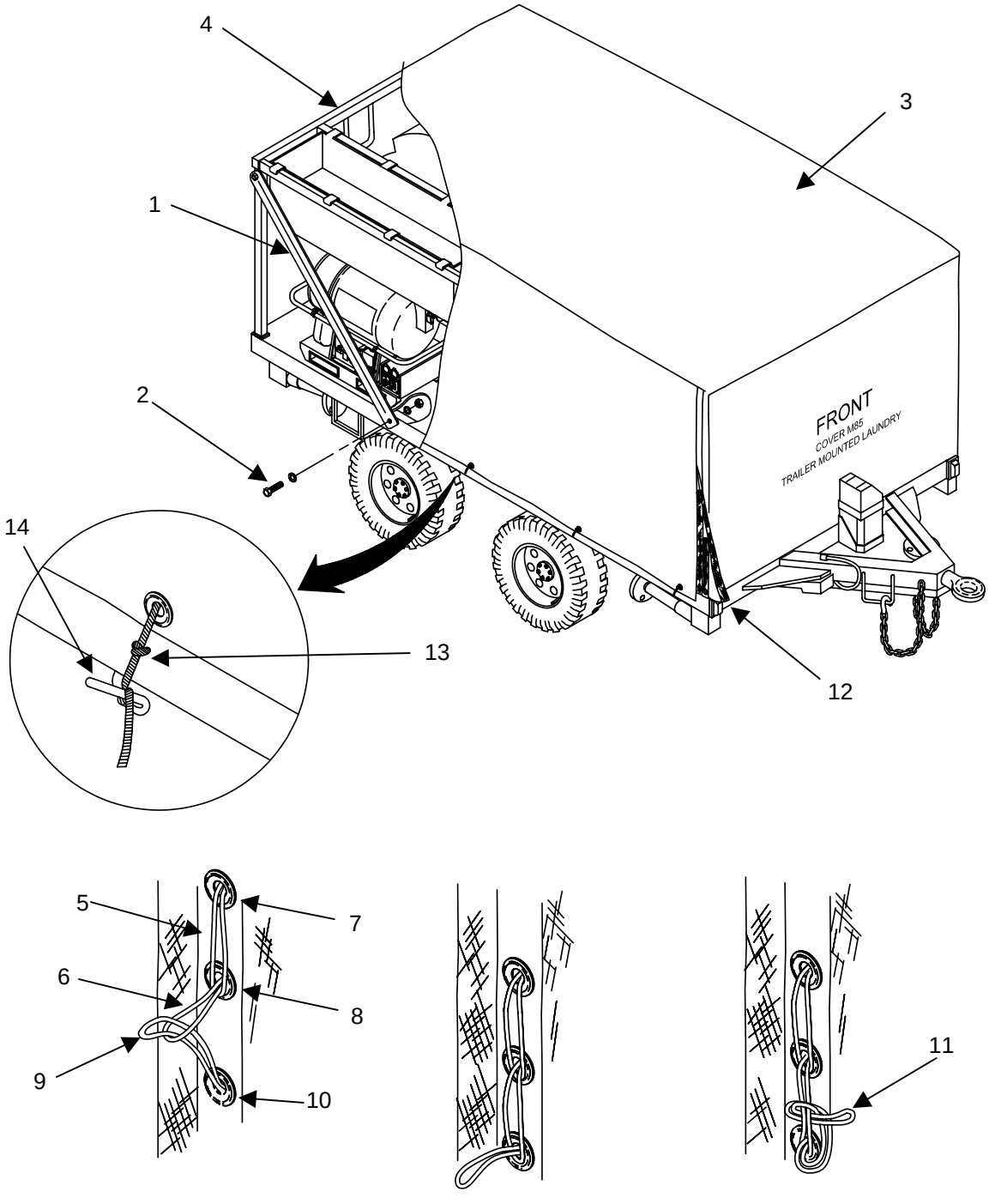
(17) Continue lacing and insert next-to-last lace through loop in last lace.

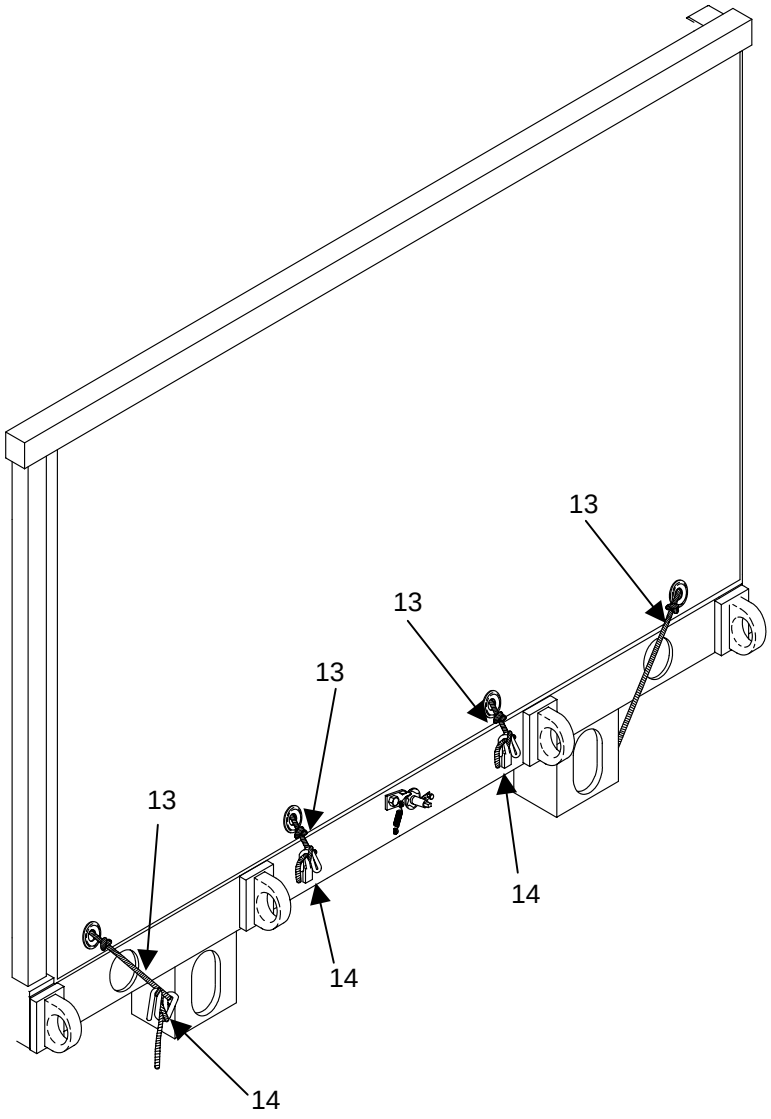
(18) Pull the next-to-last lace tight and tie off with half-hitch knot (11).

(19) Close hook and pile weather flap (12).

(20) Close remaining corners in the same manner.

(21) Hook fibrous rope (13) onto trailer hooks (14).





OPERATING LEVELING JACKS

CAUTION

Lower and raise all leveling jacks in increments. Lowering and raising one leveling jack leg without lowering and raising the others can damage trailer.

Lowering

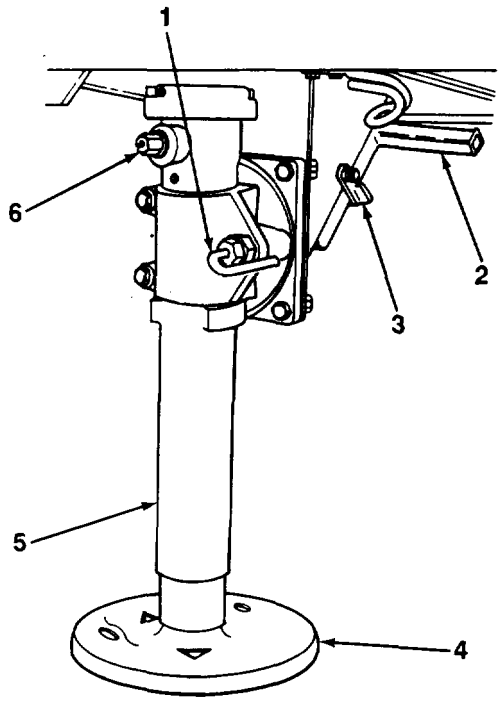
CAUTION

Trailer must be uncoupled from towing vehicle before using leveling jacks to level trailer. Failure to follow this caution may result in damage to leveling jacks.

1. Pull swivel pin assembly (1) and allow leveling jack leg (5) to slowly swing down until swivel pin assembly “clicks” into locked position.
2. Remove handcrank (2) from handcrank latch (3) and place on gearshaft (6).
3. Continue lowering leveling jack leg (5) until trailer is level or desired effect is achieved.

Raising

1. Rotate handcrank (2) counterclockwise to raise shoe (4) completely off ground.
2. Remove handcrank (2) from gearshaft (6) and stow in handcrank latch (3).
3. Release swivel pin assembly (1) and swing leveling jack leg (5) into travel position until swivel pin assembly “clicks” into locked position.



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OPERATION UNDER UNUSUAL CONDITIONS

This work package contains special procedures for operating the M85 series laundries under unusual weather and environmental conditions. Refer to TM 5-6115-585-12 for similar information on the generator, TM 10-4520-259-13&P on the water heater, and TM 9-2330-376-14&P on the trailer.

OPERATION IN COLD

When set up in the open, the M85 series laundries can be operated even when temperatures occasionally drop slightly below 32^0 F, such as during overnight shutdown, provided proper procedures are followed. However, the laundries were not designed for unprotected operation in sustained temperatures below 32^0 F. Under these conditions, the equipment should be set up in a tent or other suitable enclosure.

WARNING

Do not touch cold metal parts with bare hands. Cold metal parts can cause frostbite and injury to personnel.

Follow procedure **2** in work package 0008 00 to shut down the laundry when temperatures below 32^0 F are expected.

OPERATION IN DUST OR SAND

Shut down the Laundry Unit during severe dust storms. Close air shutters on water heater and dryer as described in Work Package 0006 00. Cover the trailer with a tarpaulin or other suitable protective covering.

To prevent fuel contamination, cover drum with tarpaulin and place cans under cover on trailer.

When the area is reasonably clear of dust, clean the dryer and water heater fuel filters as described on work package 0013 00. Clean remaining equipment thoroughly.

OPERATION IN SNOW OR MUD

Ensure trailer supports and platform footings are in use and emplace field expedient bracing material to firm soil around supports and footings.

OPERATION IN SALTWATER AREAS

Inspect the Laundry Unit frequently for rust and corrosion. Frequently wash the equipment with fresh water to prevent a buildup of salt deposits. Rusted or corroded condition must be corrected as soon as possible.

EMERGENCY PROCEDURES

In an emergency, pull out DC control circuit breaker on the generator control panel, or turn OFF 60AMP main circuit breaker on power distribution panel to shut down all electrical power to Laundry Unit. Familiarize yourself with the location of these controls (Refer to TM 5-6115-585-12 for location of generator controls) before operating the laundry.

A fire extinguisher with dry chemical for class A, B, or C type fires is mounted on the trailer.

CHAPTER 3

TROUBLESHOOTING PROCEDURES
FOR
LAUNDRY UNIT, TRAILER MOUNTED

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
TROUBLESHOOTING PROCEDURES

TROUBLESHOOTING PROCEDURES

The troubleshooting procedures contained in this work package are for all models of the M85 Laundry. For similar procedures covering the generator, refer to TM 5-6115-585-12, for the trailer to TM 9-2330-376-14&P, and for the water heater to TM 10-4520-259-13&P.

INTRODUCTION

The Malfunction Index lists the common malfunctions that you may find during operation or maintenance of the laundry unit or its components. You should perform test, inspections, and corrective actions in the order listed. This manual cannot list all malfunctions that may occur nor all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

DO NOT START UNTIL:

- You understand the task.
- You understand what you are to do.
- You understand what is needed to do the work.
- You have the things you need.

MALFUNCTION SYMPTOM INDEX

NOTE

Before you use the troubleshooting tables, be sure you have performed all applicable operating checks and verified that a malfunction exists. When a corrective action is performed, verify that the action has corrected the malfunction. Malfunctions deferred to the next higher level of maintenance must be reported on DA Form 2404.

NOTE

Be sure to read all warnings in front of manual before troubleshooting.

Procedure No.	Malfunction	Page Number
1	No Power to Circuit Breakers	0011 00-3
2	Water Pump Fails to Start	0011 00-3
3	Water Pump Fails to Deliver Water	0011 00-5
4	Dryer Fails to Start	0011 00-7
5	Dryer burner starts up but flame goes out.	0011 00-7
6	Dryer Fails to Dry Laundry	0011 00-9
7	Extractor Fails to Start	0011 00-11
8	Extractor Fails to Drain	0011 00-11
9	Washer Fails to Start In Automatic	0011 00-13
10	Washer Fails to Start In Manual	0011 00-15
11	Washer Fails to Fill With Water In Automatic	0011 00-17
12	Washer Fails to Fill With Water In Manual	0011 00-19
13	Washer Fails to Drain	0011 00-21
14	Air Compressor Fails to Start	0011 00-23
15	Air Compressor Fails to Deliver Air Pressure	0011 00-23

Table 11-1. Troubleshooting Procedures		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 1 No power to system.	Check for availability of power at the power distribution panel (1). **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution.	Shut down generator. Refer to TM 5-6115-585-12 if necessary. Remove main power cable (2) from power distribution panel socket. Open door on power distribution panel (1). Determine if No.1 main circuit breaker (60 AMP) (3) has tripped. If it tripped, reset circuit breaker. Close door on power distribution panel (1). Reconnect main power cable (2) to power distribution panel socket. Start generator and apply power to distribution panel. Refer to TM 5-6115-585-12 if necessary
	Check for availability of power at generator.	Place AC CIRCUIT BREAKER on generator (4) to ON. If no power, notify unit maintenance.
Procedure No. 2 Water pump fails to start.	Check for availability of power at the power distribution panel (1). . **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution.	Set pump toggle switch (5) to OFF. Make sure distribution power cable (6) is properly connected. Push reset button (7) Check if No. 5 water heater circuit breaker (No. 5) (8) in power distribution panel (1) has tripped. Reset circuit breaker. Set pump toggle switch (5) to ON. If water pump fails to start, set pump toggle switch (5) to OFF and notify unit maintenance.

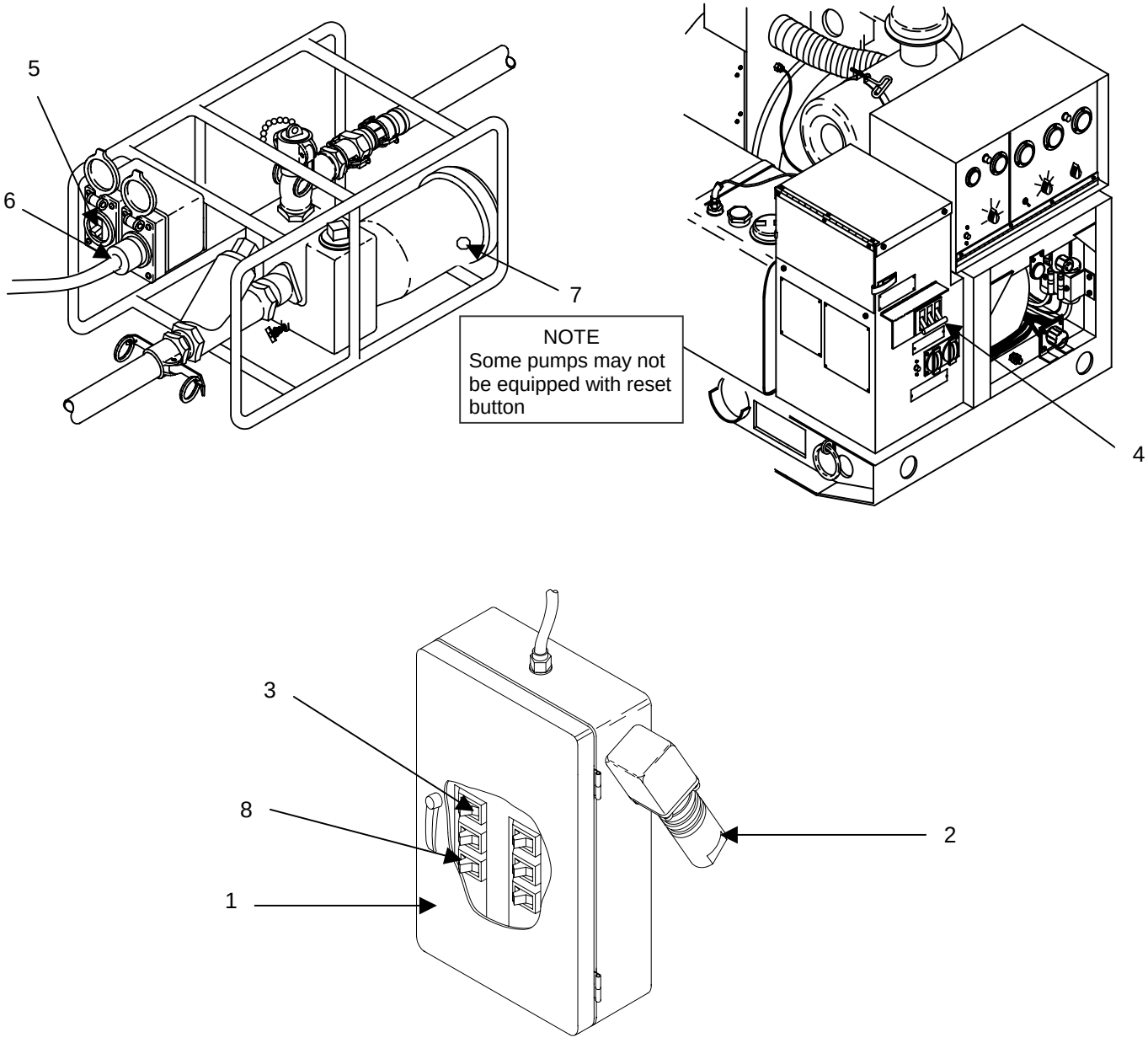
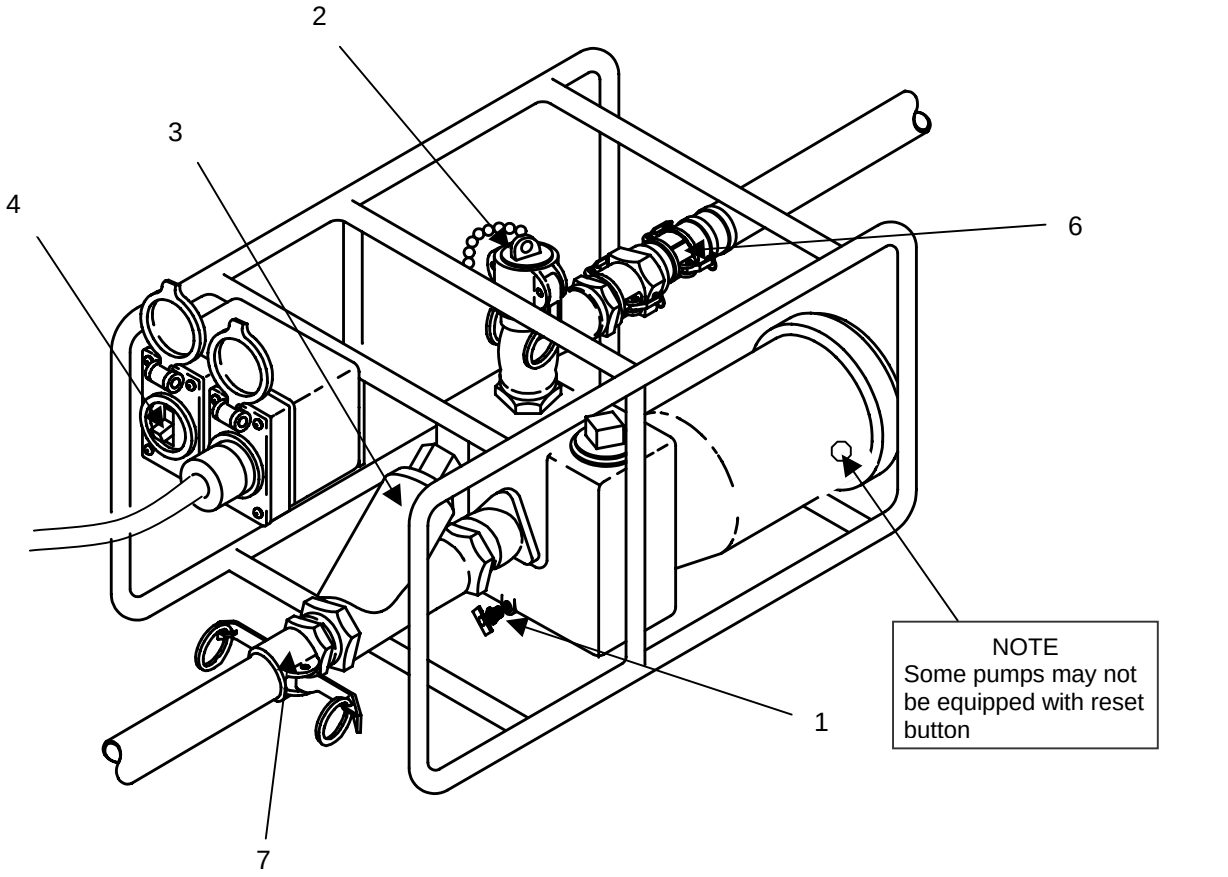

5
6
7
4
NOTE
Some pumps may not be equipped with reset button
3
8
1
2

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 3 Water pump runs but fails to deliver water.	Check drain cock (1) under pump to verify that it is closed. Check priming port (2) to verify that it was adequately primed. Determine if sediment strainer (3) is clogged.	Set pump toggle switch (3) to OFF. If pump is not primed, refer to work package 0006, Initial Adjustments. Clean sediment strainer (3). Set pump toggle switch (4) to ON.
	Check water source and water hoses.	Set pump toggle switch (4) to OFF. Check water source to see if sufficient water is available, Check water suction strainer (5) for clogs, and clean, if necessary. Walk along water hoses and check for leaks. Replace a leaky hose. Disconnect QD coupling (6) on inlet side of water pump. Check hose for clogs, and clean if necessary. Reconnect hose to water pump and repeat procedure on hose connected to outlet side (7) of pump and water heater. Set pump toggle switch (4) to ON. If the pump will not deliver water, set toggle switch (4) to OFF and notify unit maintenance.


2
3
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NOTE
Some pumps may not be equipped with reset button

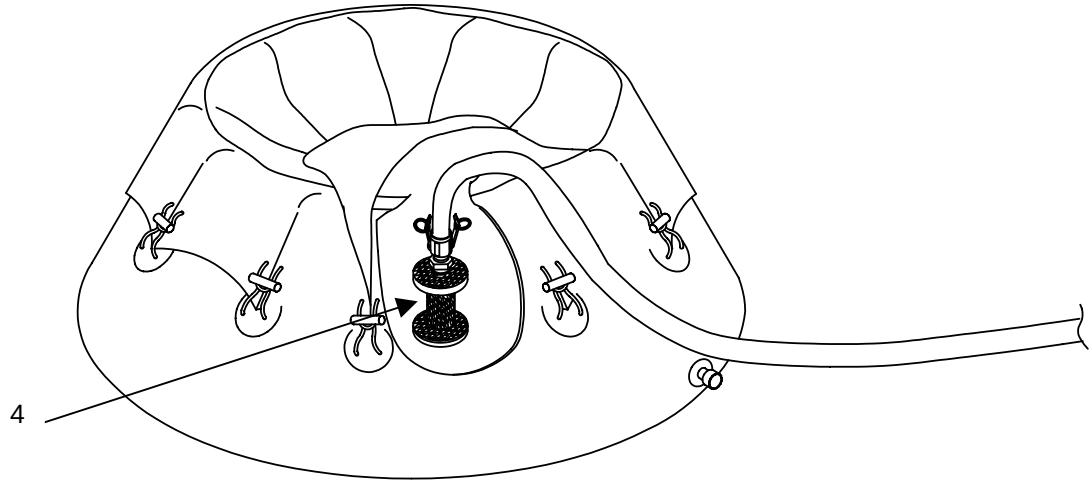
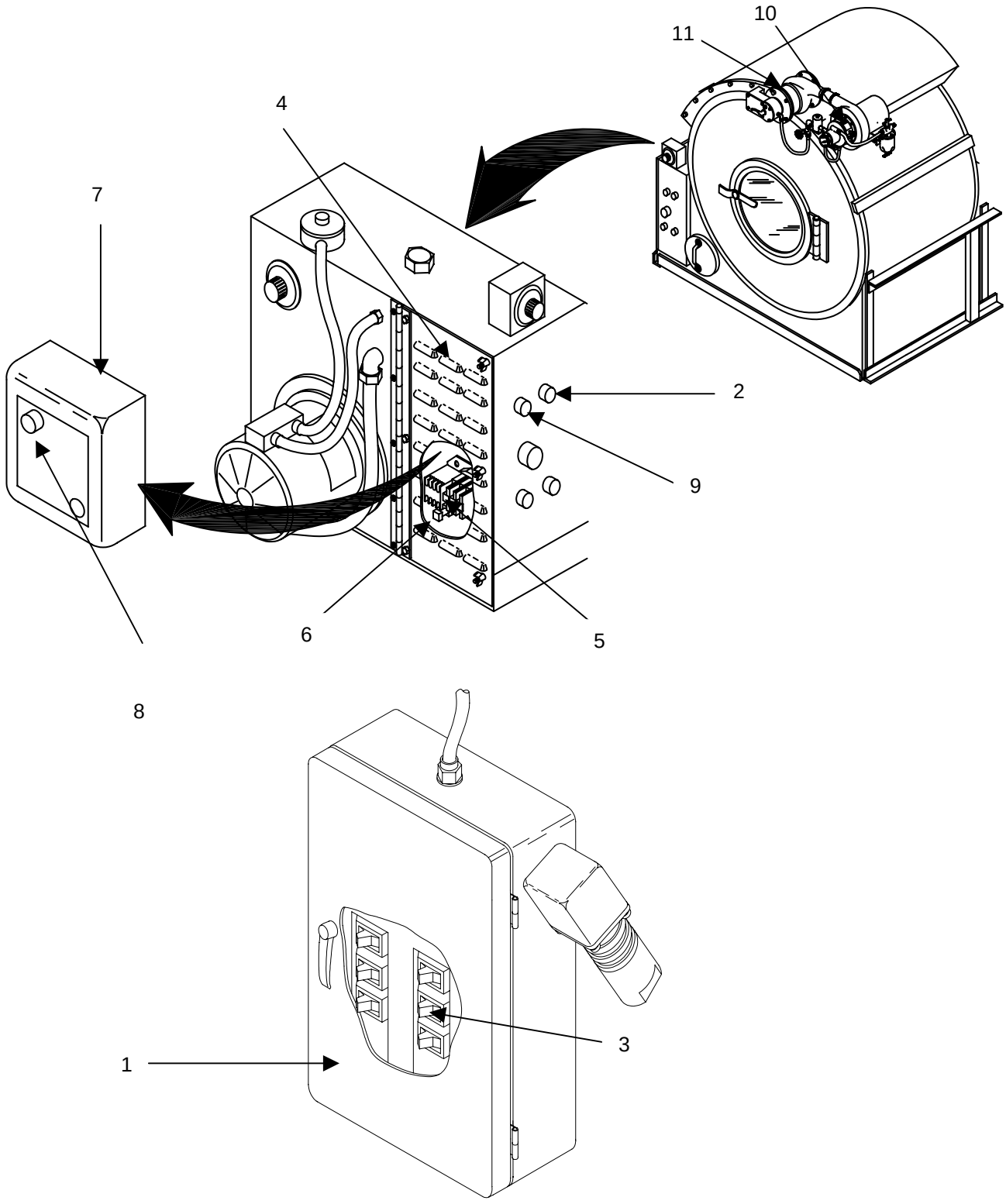

4

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 4 Dryer fails to start.	Check for availability of power at the power distribution panel (1). **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution. **NOTE** The M-85-100 and M-85-200 Laundries have different model UVM. Units with the earlier model UVM 1 (with red reset button) can be reset only after power is turned **OFF**. (Wait 60 Seconds). The UVM 2 and 3 (with red cover) must be reset with the power **ON**.	Set STOP RESET button (2) to STOP. Open power distribution panel door (1). Determine if No.4 circuit breaker (3) has tripped. If it tripped, reset circuit breaker. Close power distribution panel (1) door. Open dryer control box cover (4). On burner starter motor relay (5), push burner starter motor reset button (6). On UV scanner control box terminal box relay (7), push UV scanner control terminal box reset button (8). Close dryer control box cover (4). Push START button (9). If dryer fails to start, push STOP RESET button (2) and notify unit maintenance.
Procedure No. 5 Dryer burner starts up but flame goes out.	Check UV or IR Scanner safeguard flame control for cleanliness/cracks.	Check UV or IR Scanner safeguard flame control for cleanliness and/or cracks as described under Procedure 6.
	Adjust air shutter (10) and air nozzle (11).	Refer to WP 0006 for adjustment procedures.


10
11
4
7
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9
6
5
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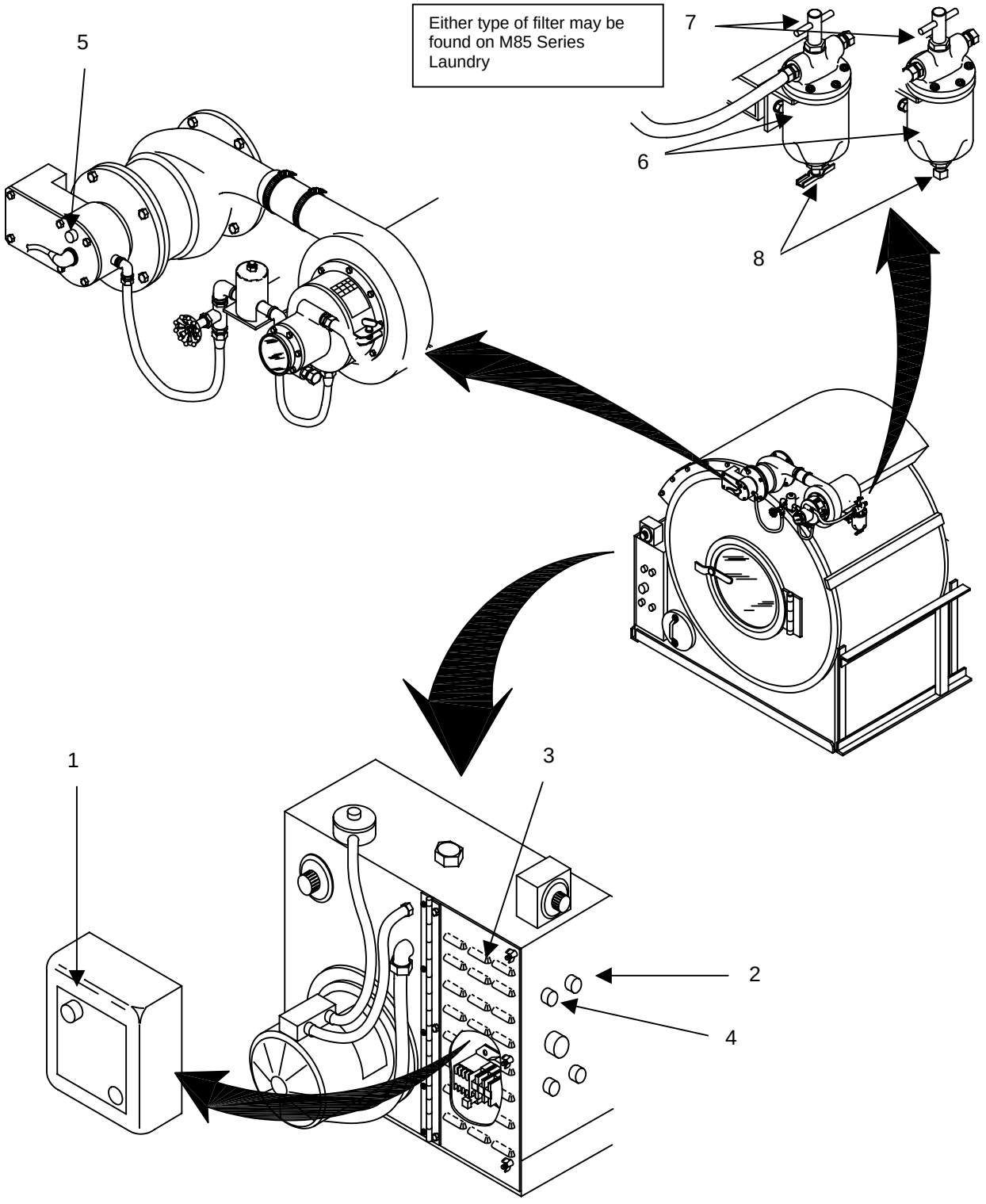
1
3

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 6 Dryer fails to dry laundry.	Check temperature control (1) for proper setting.	Refer to WP 0007 for determining the proper temperature setting.
	Check if UV or IR Scanner reset button (1) has tripped.	Set STOP RESET button (2) to STOP. Open dryer control box cover (3). Push UV Scanner flame safeguard control reset button (1). Close dryer control box cover (3). Set START button (4) to START
	Check UV or IR Scanner safeguard flame control (5) for cleanliness/cracks. **CAUTION** When installing the UV Scanner safeguard flame control, do not over-tighten or it will crack.	Set STOP RESET button (2) to STOP. Unscrew and remove UV Scanner safeguard flame control (5). Clean UV Scanner safeguard flame control (5) with a dry clean cloth. Ensure tube is clean. Check UV Scanner safeguard flame control (5) for cracks. Install cleaned, (or new one, if the one removed was cracked) UV Scanner safeguard flame control (5). Set START button (4) to START. If dryer fails to dry laundry, set STOP RESET button (2) to STOP.
	Check for clogged fuel filter (6). **WARNING** Fuel is highly flammable. It can ignite easily and cause serious burns and injury due to explosion.	Set STOP RESET button (2) to STOP. Turn fuel filter handle (7) several times. Remove (or open) drain plug (8) and allow sediment and moisture to drain from filter bowl. Capture liquid into a container. Reinstall (or close) drain plug (8). Set START button (4) to START. If fuel pressure is low, pulsates, or there is no pressure, push STOP RESET button (2) and notify unit maintenance.


Either type of filter may be found on M85 Series Laundry
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7
6
8
1
3
2
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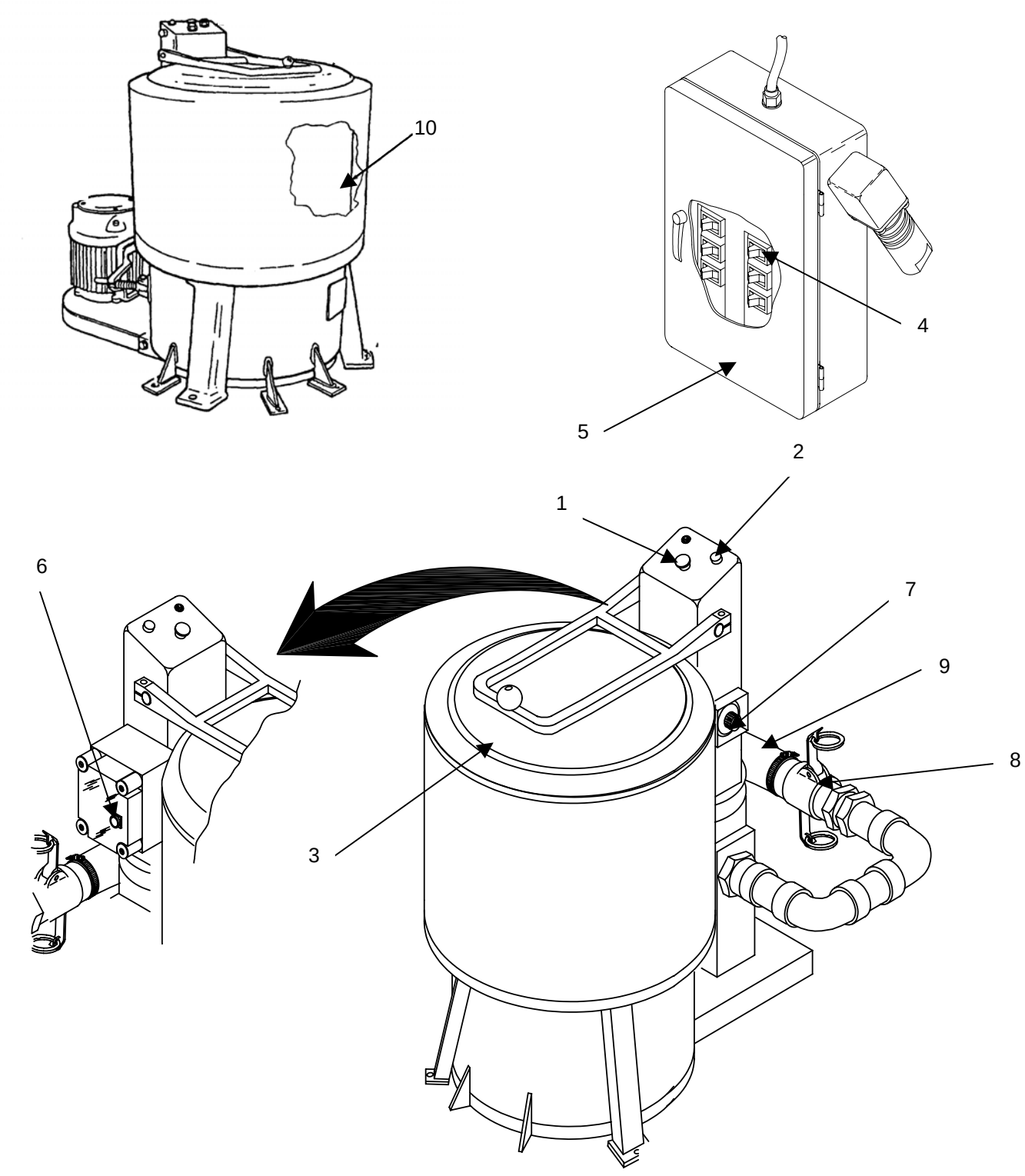
Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 7. Extractor fails to start.	Check EMERGENCY STOP ONLY button (1).	If EMERGENCY STOP ONLY button (1) is pushed in, reset by pulling EMERGENCY STOP ONLY button out. Press PUSH TO START button (2).
	Check lid (3) and make sure it is closed.	If lid is open (3), close lid all the way down on the seal. Press PUSH TO START button (2).
	Check for availability of power at the power distribution panel (5).	Check if main breaker #1 or extractor brake #2 in main power distribution panel is tripped. Check if breaker in extractor power distribution panel is tripped. If it tripped reset circuit breaker and close panel door. Press PUSH TO START button (2).
	Check RESET button (6).	Press RESET button (6) to make sure button is reset. Press PUSH TO START button (2).
	Check timer interval (7) for correct setting.	Set timer interval (7) to three minutes. Press PUSH TO START button (2). If extractor fails to start, notify unit maintenance.
Procedure No. 8. Extractor fails to drain.	Inspect drain hose (8) and piping (9) for clogging.	Remove drain hose (8). If clogged, clean out hose (8) and reconnect. If piping (9) is clogged, attempt to remove clog. Lift out inner drum (10) and remove any small clothing items caught. Press PUSH TO START button (2). If extractor fails to drain, push EMERGENCY STOP ONLY button (1) and notify unit maintenance.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3

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 9. Washer fails to start in AUTOMATIC.	Check for availability of power at the power distribution panel (1). **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution.	Set MASTER switch (2) to OFF. Check if washer circuit breaker (No. 6) (3) in power distribution panel (1) has tripped. If it tripped reset circuit breaker and close panel door. Set MASTER switch (2) to ON.
	Check door handle (4) position.	Set MASTER switch (2) to OFF. Close door and rotate handle (4). Set MASTER switch (2) to ON.
	Check AUTO/MANUAL switch (5) position on washer control panel.	Set MASTER switch (2) to OFF. Set AUTO/MANUAL switch (5) to AUTO. Set MASTER switch (2) to ON.
	Check formula card RUN/STOP motor switch (6) for correct position.	Set MASTER switch (2) to OFF. Set RUN/STOP motor switch (6) to STOP. Remove formula card (7) from left side. Re-insert washer formula (7) card into cycle timer (8) from the right side. Line up with start marker (9) and washer formula card first cutout. Turn RUN/STOP knob (10) to RUN. Set MASTER switch (2) to ON. If washer fails to start, set MASTER switch (2) to OFF and notify unit maintenance.

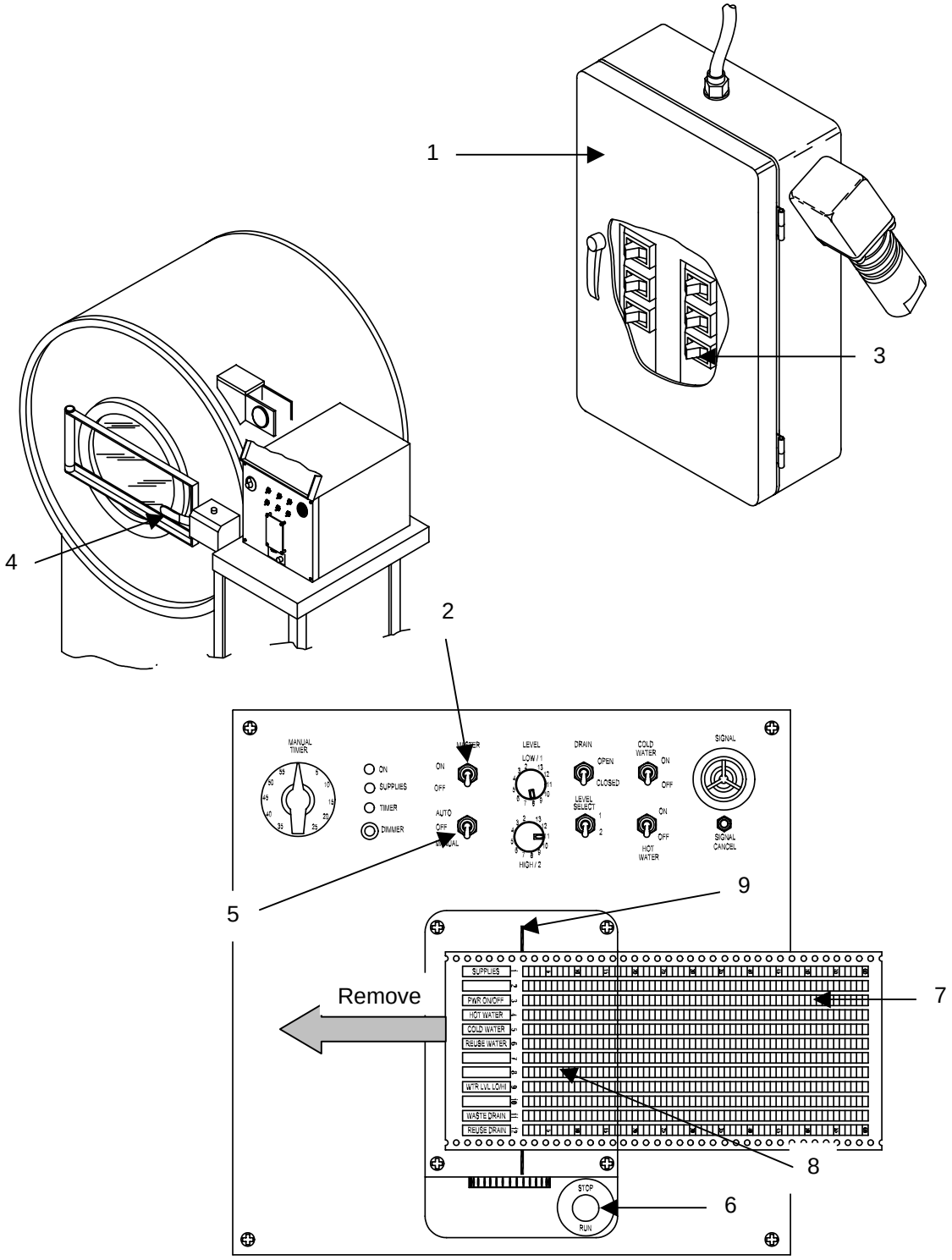

1
3
4
2
5
9
Remove
7
8
6
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
LEVEL
DRAIN
OPEN
CLOSED
COLD WATER
SIGNAL
SIGNAL CANCEL
HOT WATER
LEVEL SELECT
HIGH / 2
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LO/HI
WASTE DRAIN
REUSE DRAIN
STOP
RUN

Table 11-1. Troubleshooting Procedures - Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
Procedure No. 10. Washer fails to start in MANUAL.	Check for availability of power at the power distribution panel (1). **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution.	Set MASTER switch (2) to OFF. Check if washer circuit breaker (No. 6) (3) in power distribution panel (1) has tripped. If it tripped reset circuit breaker and close panel door. Set MASTER switch (2) to ON.
	Check door handle (4) position.	Set MASTER switch (2) to OFF. Close door and rotate handle (4). Set MASTER switch (2) to ON.
	Check AUTO/MANUAL switch (5) position on washer control panel.	Set MASTER switch (2) to OFF. Set AUTO/MANUAL switch (5) to MANUAL. Set MASTER switch (2) to ON.
	Check DRAIN switch (6) position on washer control panel (7).	Set MASTER switch (2) to OFF. Set DRAIN switch (6) on washer control panel to CLOSED. Set MASTER switch (2) to ON. If washer fails to start in manual set MASTER switch (2) to OFF and notify unit maintenance.

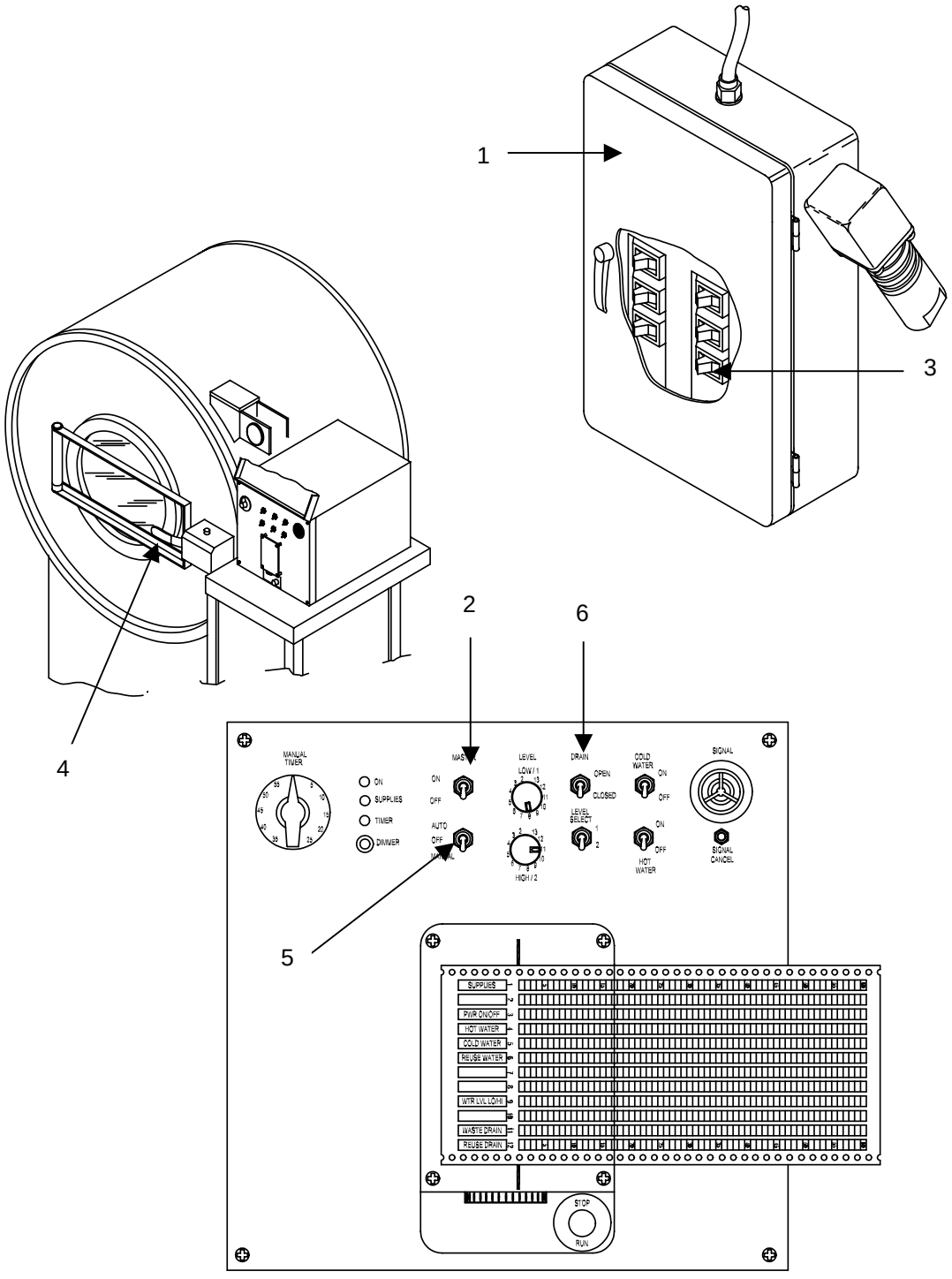

1
2
3
4
5
6
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
MASTER
ON
OFF
AUTO
OFF
MANUAL
LEVEL
LOW / 1
HIGH / 2
DRAIN
OPEN
CLOSED
LEVEL SELECT
COLD WATER
ON
OFF
HOT WATER
ON
OFF
SIGNAL
SIGNAL CANCEL
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LO/HI
WASTE DRAIN
REUSE DRAIN
STOP
RUN

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 11. Washer fails to fill with water in AUTOMATIC.	Check to see if water hose (1) between washer and water heater is properly connected.	Set MASTER switch (2) to OFF. Connect water hose (1) between washer and water heater. If in place, check hose QD couplings (3) for proper connection and hose for leaks. Set MASTER switch (2) to ON.
	Check water hose (1) between washer and water heater for clogged condition.	Set MASTER switch (2) to OFF. Disconnect water hose (1). Inspect hose (1) for clogging and clean out if necessary. Reconnect water hose (1). Set MASTER switch (2) to ON.
	Check AUTO/MANUAL switch (4) position.	Set MASTER switch (2) to OFF. Set AUTO/MANUAL switch (4) to AUTO. Set MASTER switch (2) to ON.
	Check air tank pressure gage (5)	If pressure is less than 60 psi, perform troubleshooting procedure(s) # 13 and/or #14. If washer still fails to fill with water, set MASTER switch (2) to OFF and notify unit maintenance.

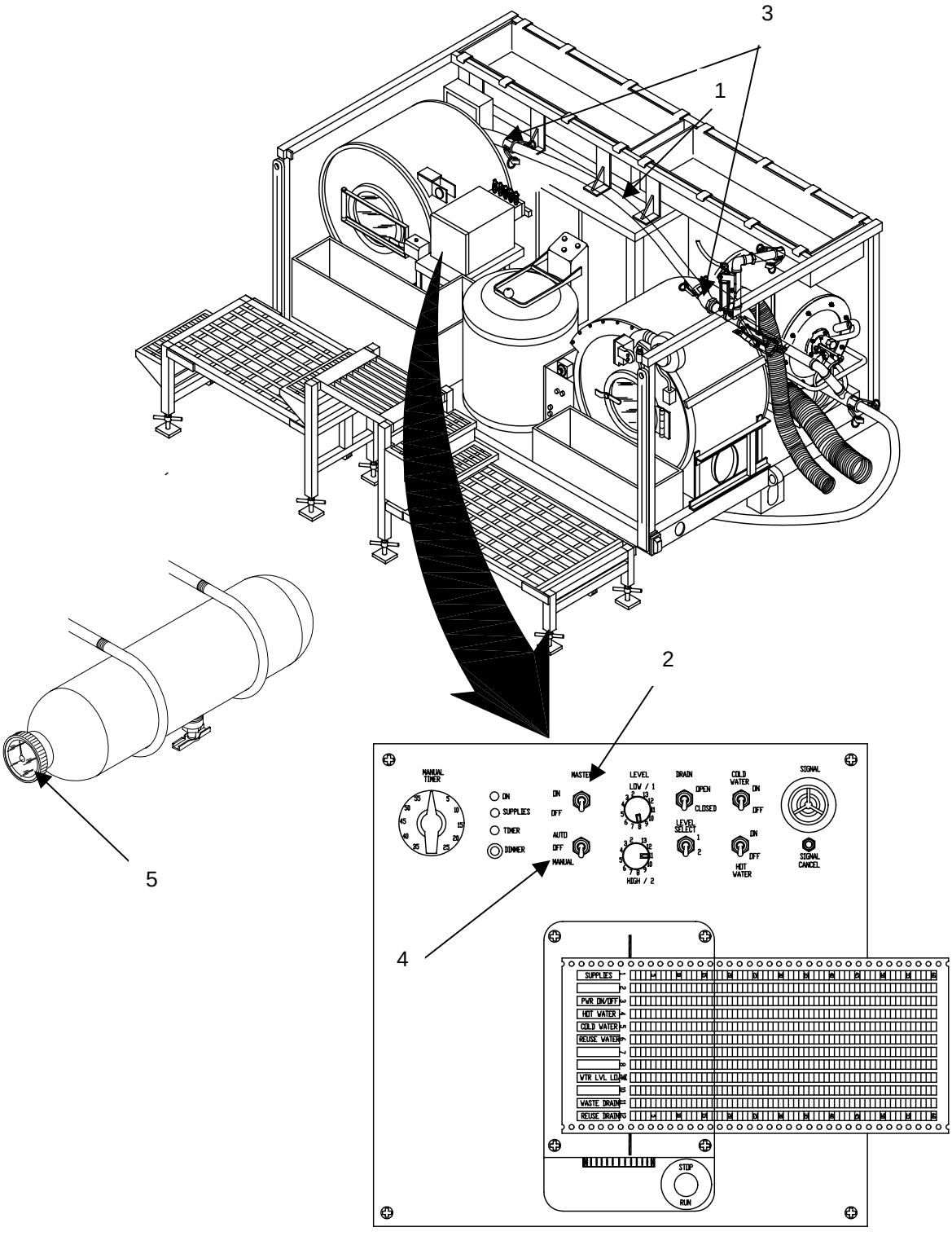

3
1
2
5
4
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
MASTER
ON
OFF
AUTO
OFF
MANUAL
LEVEL
LOW / 1
HIGH / 2
DRAIN
OPEN
CLOSED
LEVEL SELECT
COLD WATER
ON
OFF
HOT WATER
SIGNAL
SIGNAL CANCEL
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LOW
WASTE DRAIN
REUSE DRAIN
STOP
RUN

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 12. Washer fails to fill with water in MANUAL.	Check to see if water hose (1) between washer and water heater is properly connected.	Set MASTER switch (2) to OFF. Connect water hose (1) between washer and water heater. If in place, check hose QD couplings (3) for proper connection and hose for leaks. Set MASTER switch (2) to ON.
	Check water hose (1) between washer and water heater for clogged condition.	Set MASTER switch (2) to OFF. Disconnect water hose (1). Inspect hose (1) for clogging and clean out if necessary. Reconnect water hose (1). Set MASTER switch (2) to ON.
	Check AUTO/MANUAL switch (4) position.	Set MASTER switch (2) to OFF. Set AUTO/MANUAL switch (4) to MANUAL. Set MASTER switch (2) to ON.
	Check DRAIN switch (5) position.	Set MASTER switch (2) to OFF. Set DRAIN switch (5) to CLOSED. Set MASTER switch (2) to ON.
	Check air tank pressure gage (6)	If pressure is less than 60 psi, perform troubleshooting procedure(s) # 13 and/or #14. If washer still fails to fill with water, set MASTER switch (2) to OFF and notify unit maintenance.

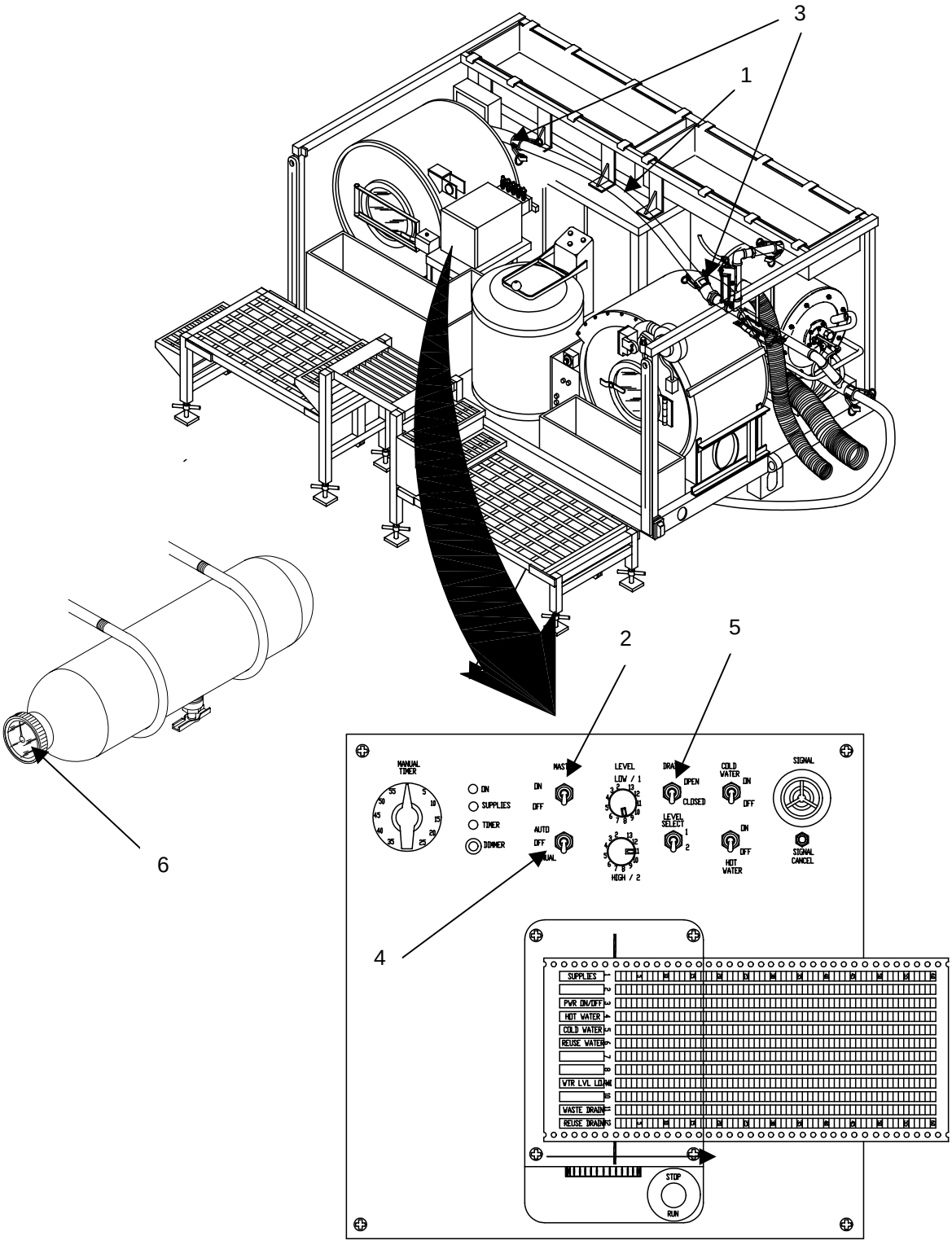

3
1
2
5
6
4
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
WASH
ON
OFF
AUTO
OFF
MANUAL
LEVEL
LOW / 1
HIGH / 2
DRAIN
OPEN
CLOSED
LEVEL SELECT
1
2
COLD WATER
ON
OFF
ON
OFF
HOT WATER
SIGNAL
SIGNAL CANCEL
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LOW
WASTE DRAIN
REUSE DRAIN
STOP
RUN

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No.13. Washer fails to drain.	Check drain hose (1) for clogging.	Set MASTER switch (2) to OFF. Disconnect drain hose (1). Check drain hose (1) for cloggs and clean if necessary. Reconnect drain hose (1). Set MASTER switch (2) to ON.
	Check manual DRAIN switch (3) for setting.	Set AUTO/MANUAL switch (4) to MANUAL. Set DRAIN switch (3) to OPEN.
	Check air tank pressure gage (5)	If pressure is less than 60 psi, perform troubleshooting procedure(s) # 13 and/or #14. If washer fails to drain, set MASTER switch (2) to OFF and notify unit maintenance.

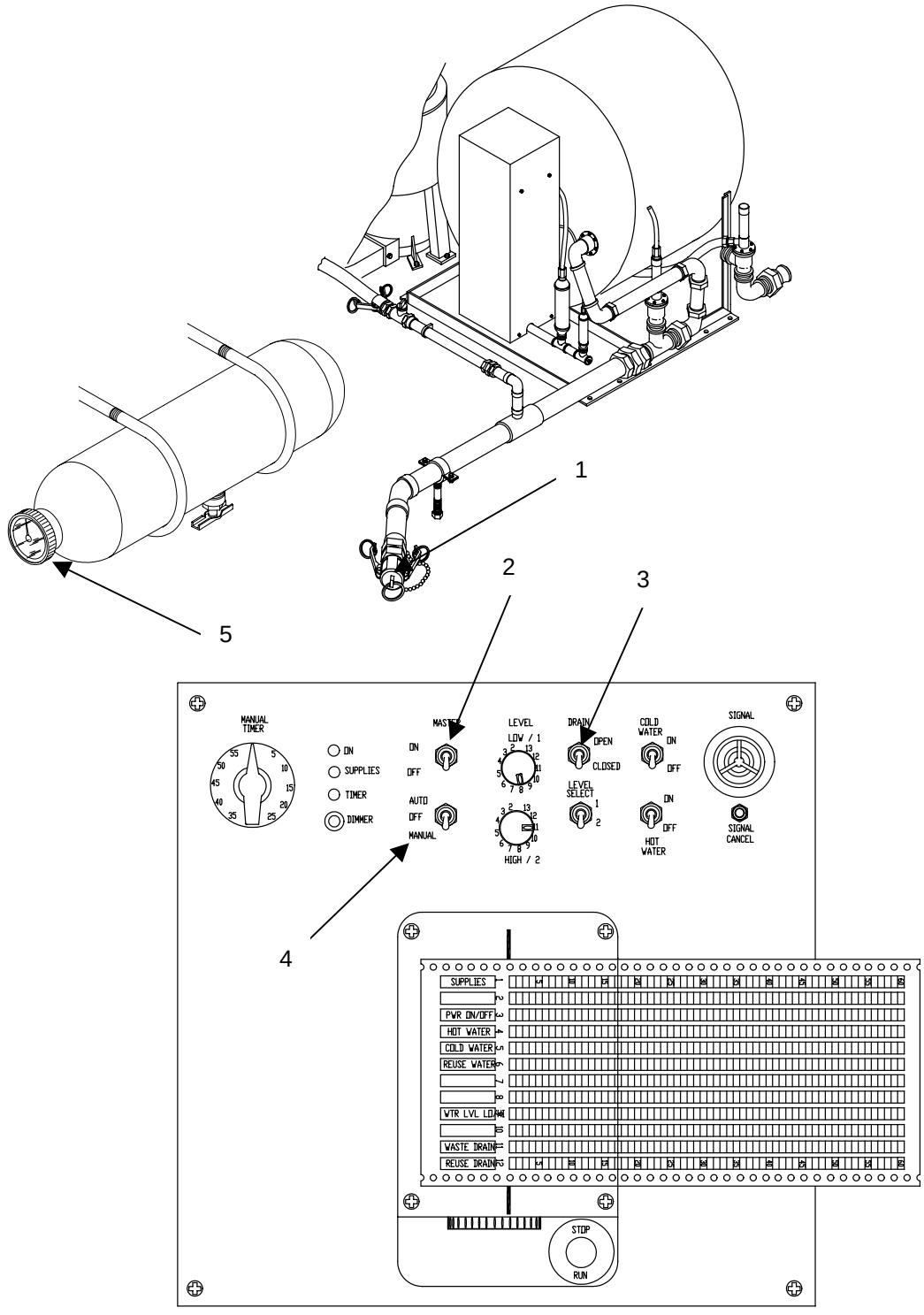
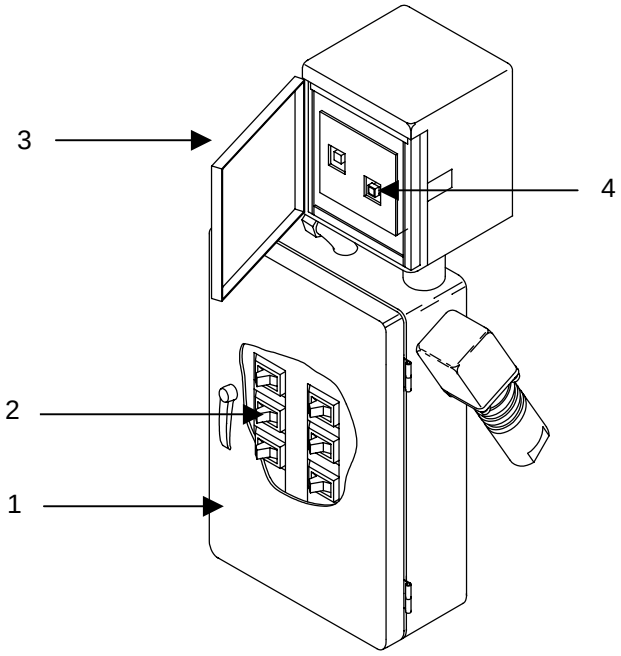
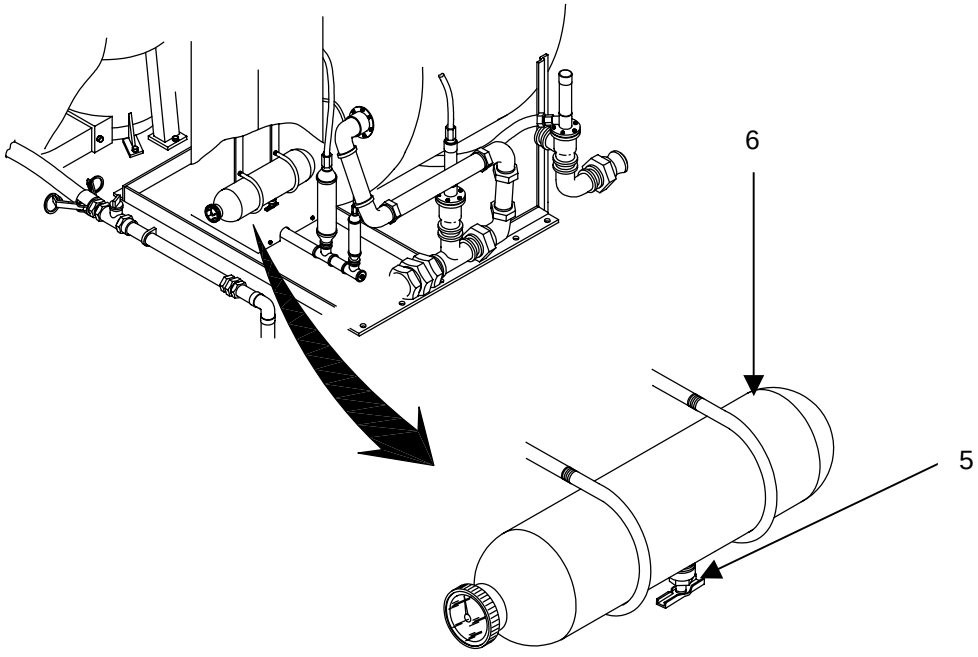

1
2
3
4
5
MANUAL TIMER
ON
SUPPLIES
TIMER
DIMMER
MASTER
ON
OFF
AUTO
OFF
MANUAL
LEVEL
LOW / 1
HIGH / 2
DRAIN
OPEN
CLOSED
LEVEL SELECT
1
2
COLD WATER
ON
OFF
ON
OFF
HOT WATER
SIGNAL
SIGNAL CANCEL
SUPPLIES
PWR ON/OFF
HOT WATER
COLD WATER
REUSE WATER
WTR LVL LOW
WASTE DRAIN
REUSE DRAIN
STOP
RUN

Table 11-1. Troubleshooting Procedures - Continued		
MALFUNCTION	**TEST OR INSPECTION**	**CORRECTIVE ACTION**
Procedure No. 14. Air compressor fails to deliver air pressure.	Check for availability of power at the power distribution panel (1). **WARNING** The laundry components operate at high voltages. Use extreme caution and follow procedures to avoid serious injury or death from electrocution.	Open door on power distribution panel (1). Determine if No.3 circuit breaker (2) has tripped. If it tripped, reset the circuit breaker. Close door on power distribution panel (1).
	Check for tripped full voltage starter (3).	Open door on power distribution panel (1). Set circuit breaker No. 3 (2) to OFF. Open enclosure box (3) above power distribution panel (1). Press full voltage starter manual reset (4). Close enclosure box (3) above power distribution panel (1). Set circuit breaker No. 3 (2) to ON. Close door on power distribution panel (1). If air compressor fails to start, notify unit maintenance.
Procedure No.15. Air compressor fails to deliver air pressure.	Check for air pressure leaking.	Determine if drain cock (5) on air tank (6) is open. Close drain cock, if necessary. If still no air pressure is available, turn off circuit breaker number 3 (2) and notify unit maintenance.


3
4
2
1


6
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CHAPTER 4

MAINTENANCE INSTRUCTIONS
FOR
LAUNDRY UNIT, TRAILER MOUNTED

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
PREVENTIVE MAINTENANCE CHECKS AND SERVICES

INTRODUCTION

Preventive Maintenance Checks and Services (PMCS) are performed to keep the M85 series laundries and their associated equipment in good operating condition. The checks are used to find, correct, or report problems. Operator personnel are to do the PMCS jobs as shown in the PMCS table. PMCS are done every day a laundry is operated, using the PMCS table. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be hurt. A CAUTION means equipment could be damaged.

Before you begin using the M85, do **Before PMCS.**

During use of the M85, do **During PMCS.**

After using the M85, do **After PMCS.**

Once a week, do **Weekly PMCS** if the M85 has been in use.

Do **Monthly PMCS** once a month if the M85 has been in use.

If you find something wrong when performing PMCS, fix it using troubleshooting and/or maintenance procedures.

The right-hand column of the PMCS table lists conditions that make the M85 not fully mission capable. Write up the faults that cannot be repaired on DA Form 2404 for unit maintenance. For further information on how to use this form, see DA PAM 738-750.

If tools that are required to perform PMCS are not listed in procedures, notify your supervisor.

INSPECTION

Look for signs of trouble. Senses help here. You can feel, smell, hear, or see many problems that can be eliminated before they get worse. Inspect to see if items are in good condition. Are components correctly installed and secured? Is any damage to the frame or components visible? Correct any faults or notify unit maintenance.

ASSOCIATED COMPONENTS

Perform PMCS on the water heater, generator, trailer, and power supply cable in accordance with the publications specified in work package 0014 00.

SPECIAL INSTRUCTIONS

Perform Weekly, as well as Before, operations PMCS if:

the equipment has not been operated since the last weekly check.
the equipment is being operated for the first time.

LEAKAGE DEFINITION

NOTE

Equipment operation is allowable with minor leakage (Class I or II). Of course, you must consider the fluid capacity in the item/system being checked/inspected. When operating with Class I, or II leaks, continue to check fluid levels as required in your PMCS. When in doubt, notify your supervisor.

NOTE

Class lI leaks should be reported to your supervisor.

Class I. Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

Class II. Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked/inspected.

Class Ill. Leakage of fluid great enough to form drops that fall from the item being checked/inspected.

GENERAL SERVICE PROCEDURES

As you perform your PMCS, keep in mind the following:

Bolts, Nuts, and Screws. Check them all for obvious looseness and missing, bent, or broken condition. You cannot try them all with a tool, of course, but look for chipped paint, bare metal, or rust around bolt heads. If you find a problem, report it to your supervisor.

Welds. Look for loose or chipped paint, rust, or gaps where parts are welded together. If you find a bad weld, report it to your supervisor.

Electrical Wires and Connections. Look for cracked or broken insulation, bare wires, and loose or broken connectors. Tighten loose connections and make sure the wires are in good condition. If you find a bad wire or connector, report it to your supervisor.

Water Lines and Fittings. Look for wear, damage, and leaks. Make sure clamps and fittings are tight. Wet spots show leaks, but a stain around a fitting or connector can mean a leak. If a leak comes from a loose fitting or connector, or if something is broken or worn out, report it to your supervisor.

THIS SECTION COVERS:
Before Operation PMCS Checks and Services

INITIAL SETUP:
M85 set up.

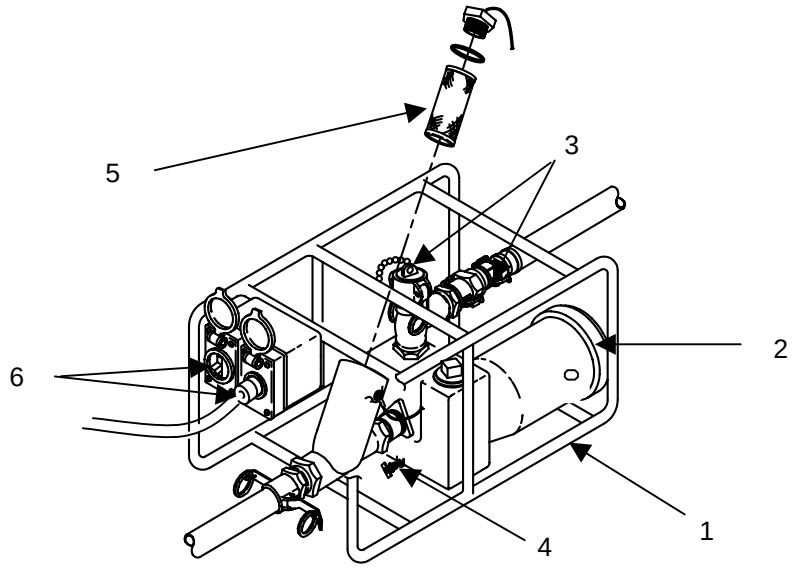
Maintenance Level
Operator

Tools and Special Tools
None

Materials/Parts
Rags (WP 0017, Item 1)

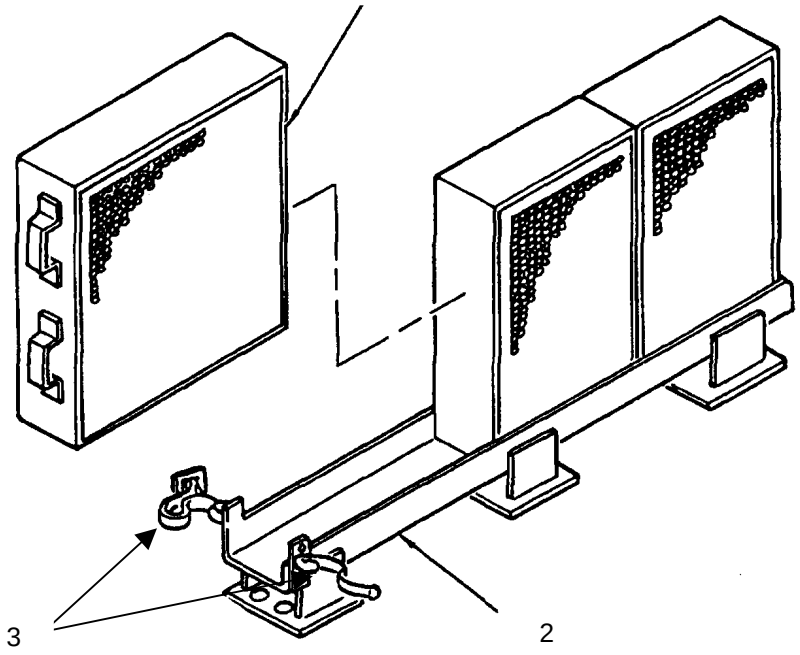
Preventive Maintenance Checks and Services

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Per LO	M85 Series Laundry Unit	Perform lubrication prior to or in conjunction with your PMCS. Refer to LO 10-351 0-222-12.	Lubrication not performed.
2	When removing Tarpaulin	Tarpaulin	Inspect for cuts, frays and damage, such as missing metallic grommets and fibrous rope.	
3	Before	Ladder	Inspect for broken welds and loose attaching hardware.	
4	Before	Water Pump	Inspect frame **(1)** for broken welds or bends. Inspect motor **(2)** for obstruction to ventilation and for loose mounting. Inspect water pipes **(3)** and pump **(4)** for loose mounting or cracked housing. Check sediment strainer **(5)** for clog. Inspect switch box assembly **(6)** for loose, broken or missing hardware.	Broken frame. AC motor loose, or clogged vent. Water pump loose, or cracked. Missing or loose pipe components. Sediment strainer clogged. Switch box assembly loose or damaged.



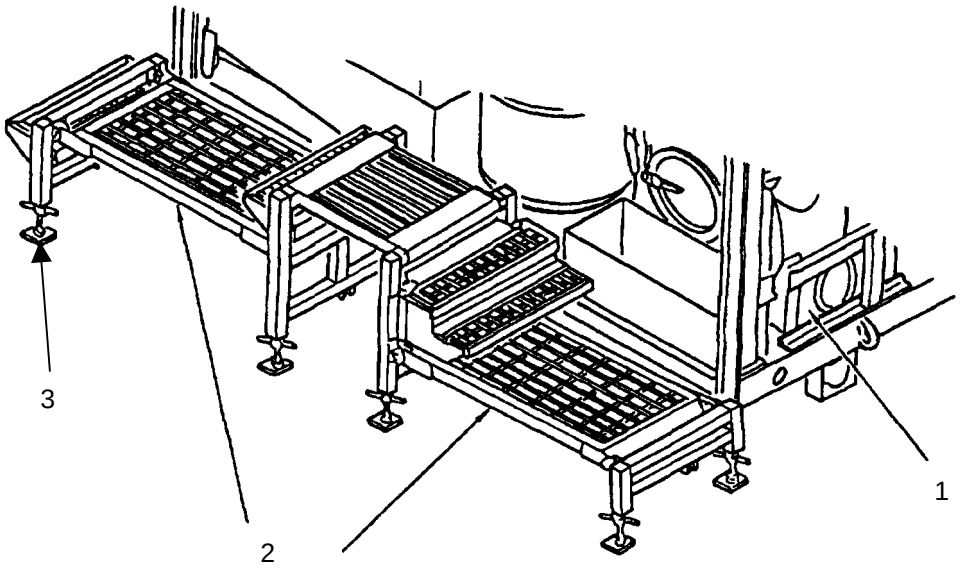
Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before	Sound Control Panels and Lower Tracking	Inspect sound control panels **(1)** for for damage. Check proper position in tracking **(2)**. Inspect tracking for broken welds and missing attaching hardware **(3)**.	



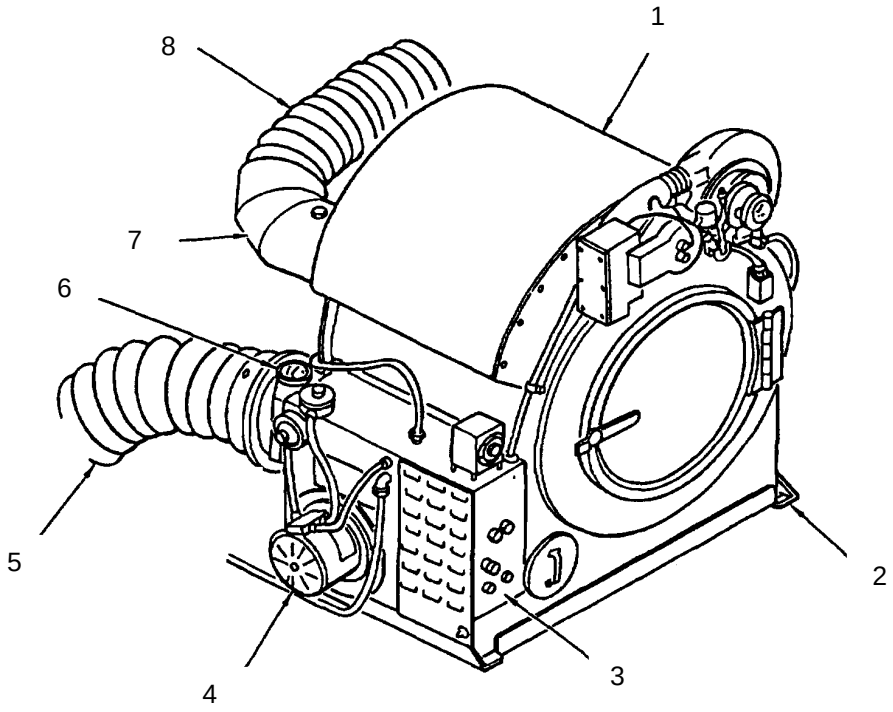
Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Before	Tool Box	Inspect toolbox mounting hardware and attaching hardware **(1)**.	
7	Before	Work Platform	Inspect work platform **(2)** to make sure it is level and close to Laundry Unit trailer. Check for broken welds. Check for missing pins and feet **(3)**.	Broken frame, missing pins, missing feet.



Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before	Dryer Bin	Inspect welds and look for sharp edges.	
9	Before	Dryer	Inspect hood **(1)** for loose or missing attaching hardware. Check base mounting hardware **(2)** for security. Inspect control panel **(3)** for loose or broken switches. Inspect exhaust motor **(4)** for loose mounting hardware and corrosion of housing. Remove and Inspect air duct hose **(5)** for cuts, rips, and hose out of round. Remove any lint from around thermometer **(6)**, the thermostatic switch and temperature control probes. Check the thermometer **(6)** for broken lens. Inspect elbow **(7)** (exhaust) for tight fit on dryer and position of elbow. Inspect exhaust metal hose **(8)** is properly installed on elbow. Check fuel filter **(9)** for leaks or loose attaching hardware. Inspect fuel hose lines **(10)** for leaks and tight connections. Inspect fuel pump **(11)** for loose connections, leaks, and loose attaching hardware. Inspect fuel adapter **(12)** for loose installation in fuel container or loose attaching hardware. Inspect air shutter **(13)** for bent condition and/ or binding. Inspect burner blower motor **(14)** for loose mounting hardware. Ensure an adequate fuel supply is available.	Hood loose, or missing hardware. Base loose or missing hardware. Electric controls have loose or broken switches. Exhaust motor has loose or missing hardware. Air duct hose has cuts and/or rips. Lint buildup around probes, thermometer, or thermostatic switch. Thermometer has broken lens. Elbow bent. Metal hose improperly installed on elbow. Fuel filter leaking or loose hardware. Fuel hose lines leak. Fuel pump has loose connections, leaks, or hardware is loose. Fuel adapter loose. Shutter bent or binding. Burner blower motor loose.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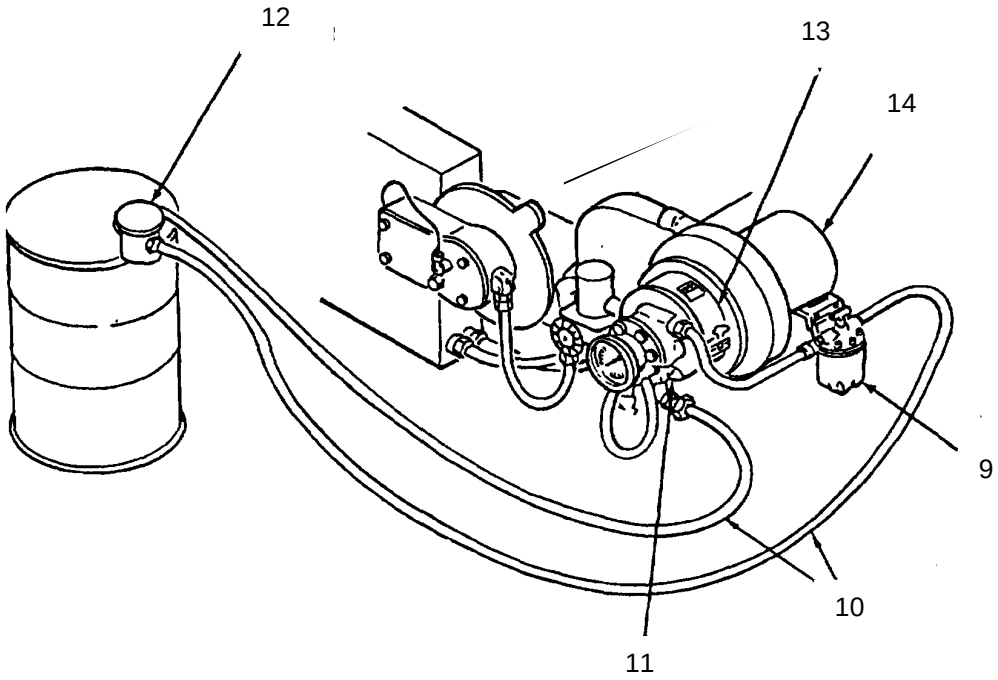
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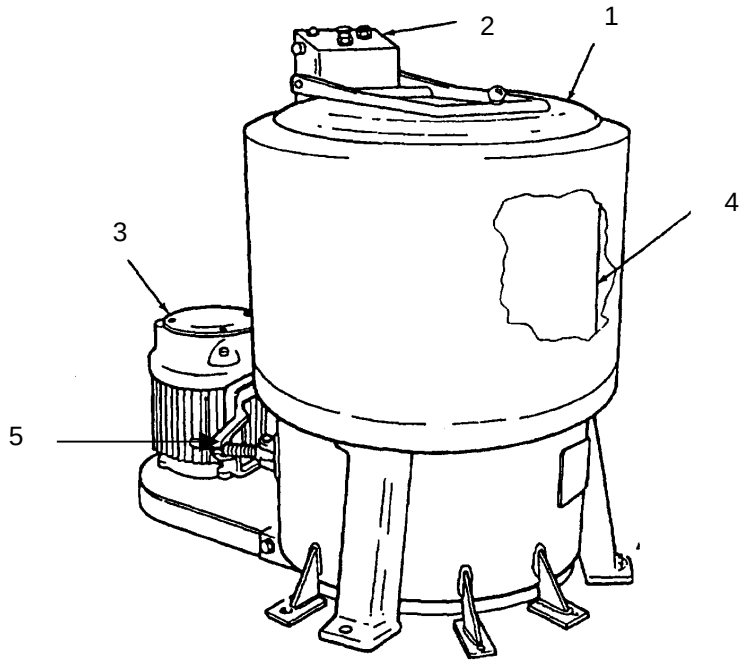
Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Before	Extractor	Inspect extractor lid **(1)** for bent broken and loose hardware. Check control panel **(2)** for loose or broken switches. Inspect ac motor **(3)** for loose mounting hardware. Inspect basket **(4)** for sharp edges and burrs. Inspect flex conduit **(5)** for tight connections and security of mounting hardware. Inspect wet wash bin for loose mounting hardware, damaged and loose piping.	Bent, broken or loose hardware. Loose or broken switches. AC motor has loose hardware. Basket has sharp edges and/or burrs. Wet wash bin mounting loose, damaged or loose piping.



Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	Before	Washer	Inspect the washer control panel **(1)** for damage to controls and face-plate. Clean as required. Inspect washer door assembly **(2)** for cracks in the observation window and torn gasket. Check door lock and handle **(3)** for loose mounting hardware. Inspect motor **(4)** for loose mounting hardware. Inspect air manifold **(5).** Check soap chute **(6)** for clogging. Inspect door gasket for cracks, breaks and loose hardware.	Faceplate is damaged or broken. Door observation window cracked. Torn, loose or brittle gasket. Door lock or handle loose. Glass is broken or missing. AC motor has loose hardware. Air manifold, hoses, and other hardware loose and cracked or cut hose. Door gasket cracked, broken or loose.

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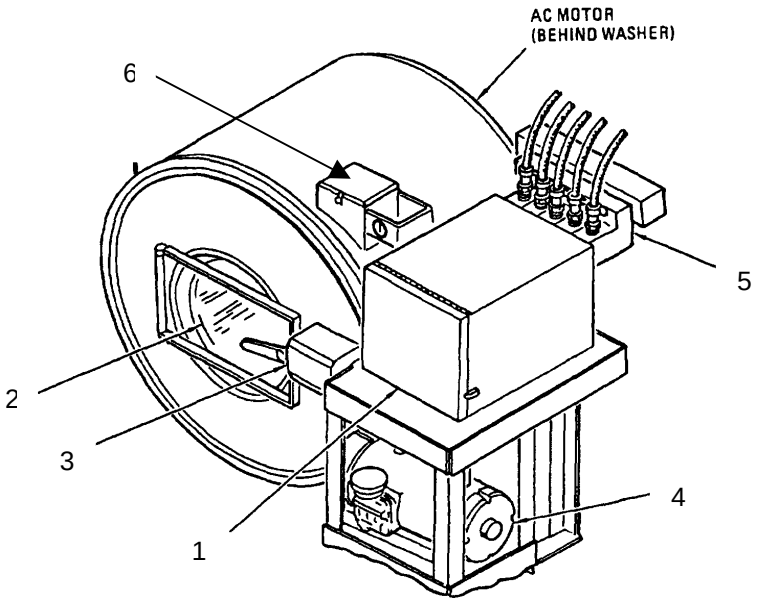
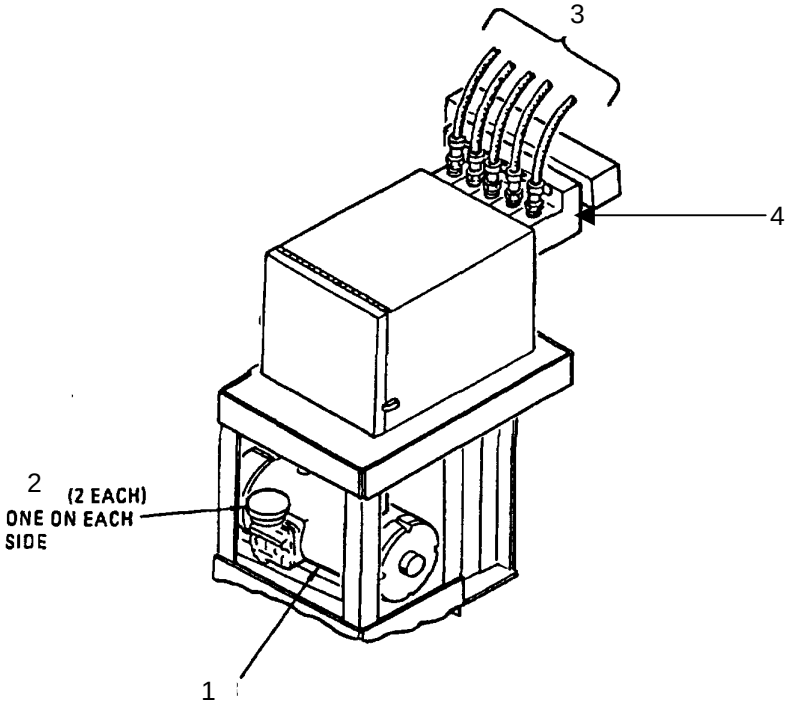
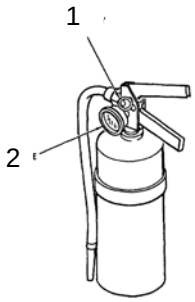


Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Before	Air Compressor	Inspect air compressor **(1)** for loose mounting hardware and corrosion. Inspect air filter inlet **(2)** for debris restricting the intake. (There are 2 air filters, one on each side of the air compressor) Inspect the nylon tubing air line **(3)** for cracks or cuts and secure attachment to the manifold **(4)**.	Air compressor is rusted and has loose mounting hardware. Air filter(s) are clogged and restricted by debris. Nylon tubing (air lines) cracked, cut, or loose.

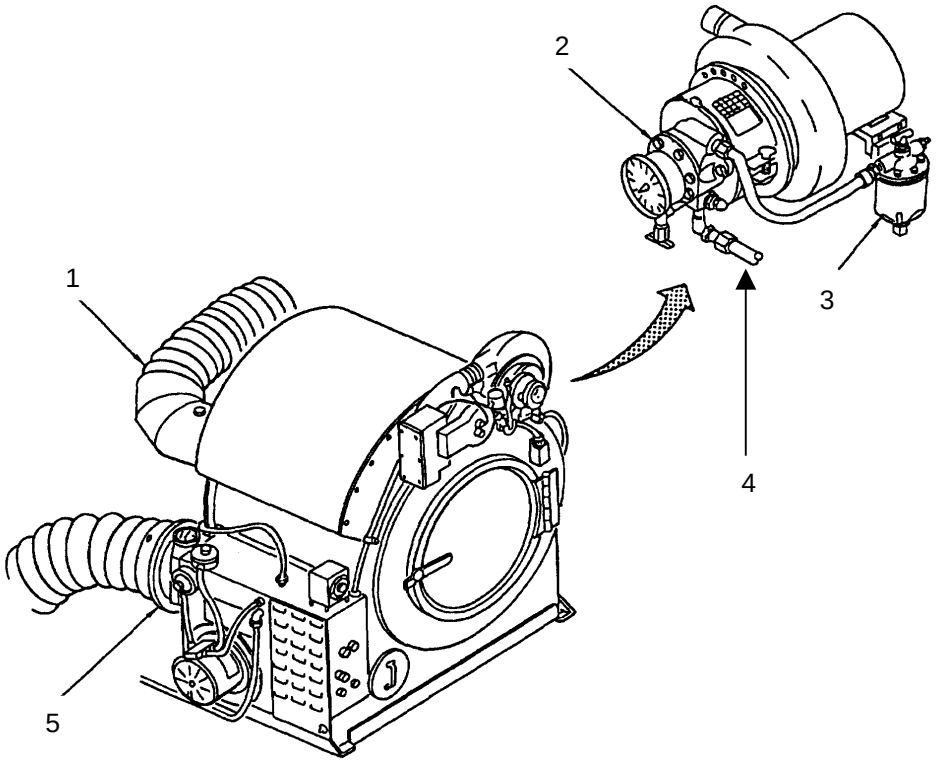


Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Before	Water Pipes	Inspect water piping, including supply and drain lines for properly installed and tight mounting hardware. Check for damage.	Water piping mounting hardware loose or damaged.
14	Before	Fire Extinguisher	Inspect fire extinguisher pin **(1)** for damage or missing pin. Inspect pressure gage **(2)** for indication of being fully charged. 	Pin is damaged or missing. Fire extinguisher not fully charged.
15	Before	Ground Rod	Inspect ground rod sections (if not employed) for bent rods, stripped threads, and presence of braided wire and fastening hardware.	Ground rod sections bent, braided wire missing, fastening hardware missing.
16	Before	Main Power Cable	Inspect main power cable for frayed condition or cuts and proper connection to power distribution panel.	Main power cable cut or frayed. Connector plug not properly connected.
17	Before	Power Distribution Panel	Inspect power distribution panel for rust, functioning door and handle. Check for loose mounting and damage to the box or breakers. Make sure panel is closed.	Power distribution panel loose or damaged/rusted. Door inoperable. Damage to breakers.

Preventive Maintenance Checks and Services - Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
18	During	Dryer	Inspect exhaust metal hose **(1)** for leaks and loose connection. Also check fuel pump **(2)**, fuel filter **(3)**, and fuel hose lines **(4)** for fuel leaks. Check fuel supply for availability of sufficient fuel. Check air duct hose **(5)** for proper connection.	Metal exhaust hose duct leaks or is not properly connected. Fuel is leaking. Fuel supply is empty. Air duct hose not properly connected.

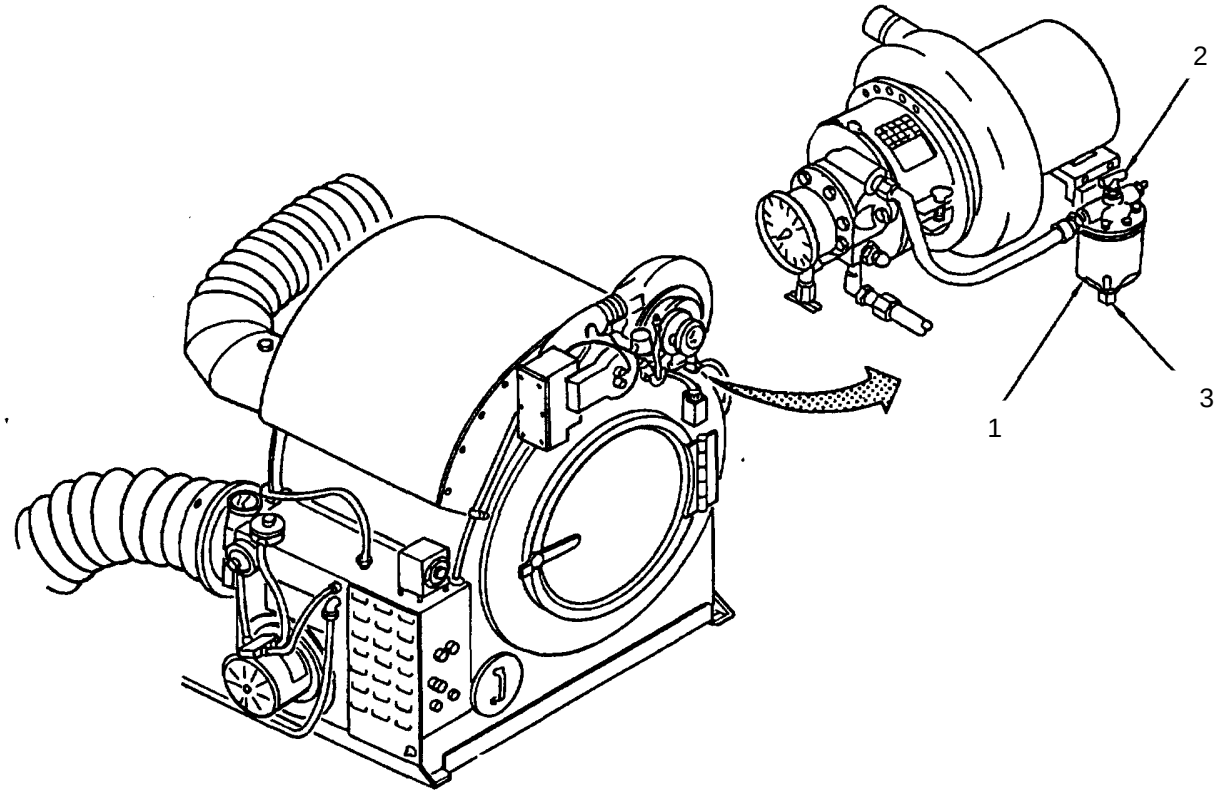


Preventive Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
19	After	M85 Laundry	**CAUTION** Covers on equipment control boxes and the power distribution panel must be closed to prevent rust and corrosion caused by moisture. This will help prevent equipment failure. Ensure the door of the power distribution panel is closed and the handle is in the closed position. Check the dryer control box cover and secure if necessary. Check the extractor reset box and close it if necessary. **CAUTION** The laundry must be covered when not in use. Rainwater contributes to the deterioration of the M85 components. Ensure the cover is placed over the laundry trailer and secured as described in work package 0008 00.	

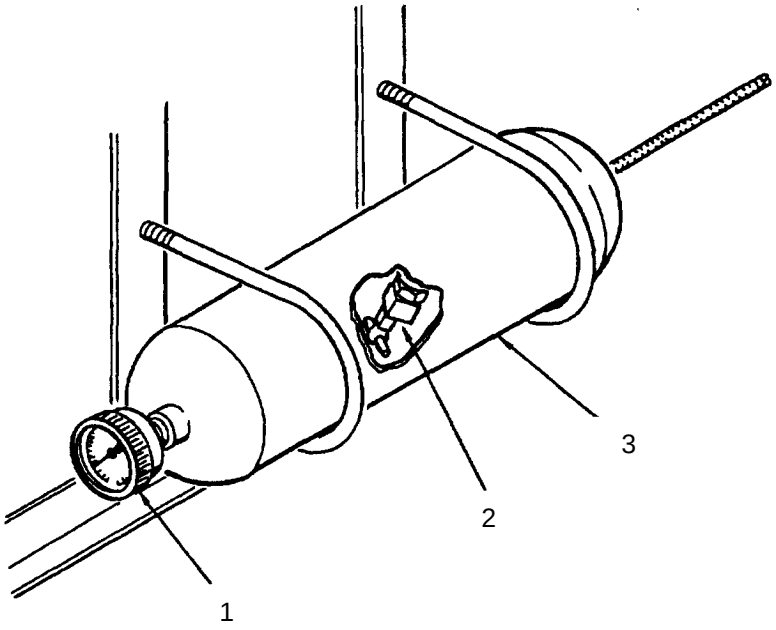
Preventive Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
20	Weekly	Dryer	On fuel filter **(1)**, turn tee handle **(2)** on top of filter four times to clean permanent element. Remove drain plug **(3)** from bottom of fuel filter to remove sediment and water. Let filter drain and re-install drain plug.	Fuel filter is clogged. Fuel contamination.



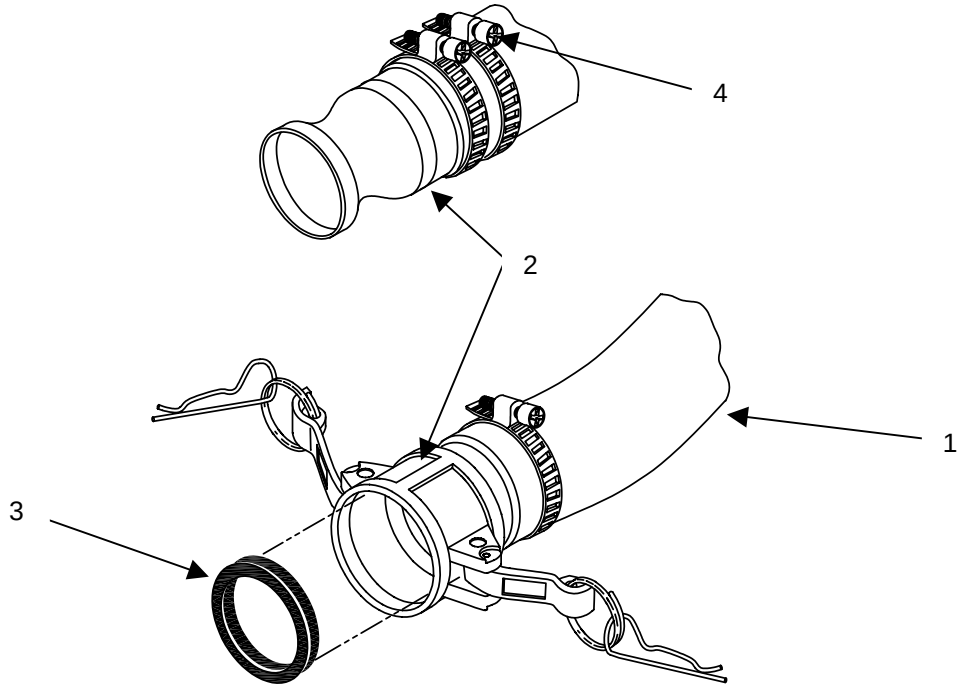
Preventive Maintenance Checks and Services – Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
20	Weekly	Air Pressure Tank	Make sure gage **(1)** shows at least 30 psi. Open drain cock **(2)** to bleed condensation from air tank **(3)**. Close drain cock **(2)**.	Air pressure tank shows no pressure. Tank contains excessive condensation.



Preventive Maintenance Checks and Services –Continued

ITEM NO.	INTERVAL	ITEM TO BE CHECKED OR SERVICED	PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Weekly	Power Distribution Cable	Check cable for damage such as cuts, abrasions, or areas where insulation is broken. Check plugs for cracked housing and bent pins.	Damaged or abraded cable with insulation damaged and /or plug unserviceable.
22	Weekly	Water and Drain Hoses	Check water and drain hoses **(1)** for cuts, abrasion or other damage. Check QD fittings **(2)** for damage and presence of gaskets **(3)**. Check hose clamp **(4)** for security.	Damaged freshwater hoses that show cuts or abrasions. Missing or unserviceable gaskets.



OPERATOR MAINTENANCE
LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, NSN 3510-01-291-8169
LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-200, NSN 3510-01-365-5687
SERVICE

INITIAL SETUP:

Tools	**Personnel Required**
Adjustable wrench	One
Materials/Parts	**Equipment Condition**
Rags (WP 0017, Item 1)	Dryer shut down.

GENERAL

The procedures in this work package are limited to servicing the fuel filter on the dryer, and removing/ installing the sound control panels. Unit and direct support maintenance procedures for the M85 series laundries can be found in TM 10-3510-222-24 and TM 10-3510-222-24&P. For maintenance procedures on the following laundry components refer to the indicated publications.

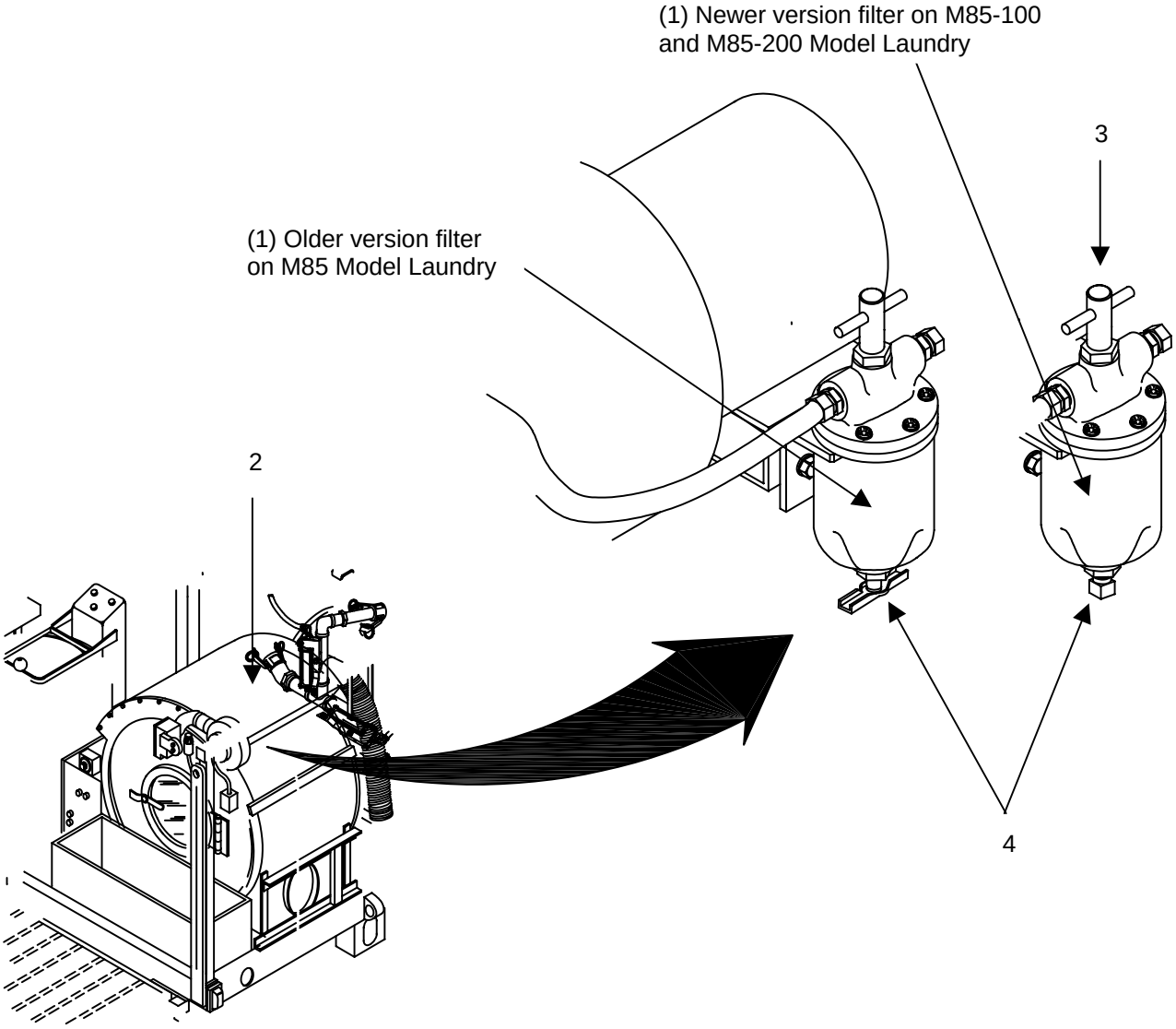
Component	Technical Publication
Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 10Kw, 3 Phase, 120/208 Volts (60Hz)	TM 5-6115-585-12 / 34 / and TM 5-6115-585-14P
Trailer, Flat Bed, General Purpose, 5 ton, 4 Wheel, XM1061E1	TM 9-2330-376-14&P
Water Heater, Liquid Fuel: M-85	TM 10-4520-259-13&P

WARNING

Fuel is highly flammable. It can ignite easily and cause serious burns and injuries due to explosion.

To service the fuel filter, proceed as follows:

1. Set the STOP RESET button on the dryer to STOP.
2. Service the fuel filter (1) on the dryer (2), by turning the handle (3) several times to clean the permanent filter element.
3. Remove the drain plug (4) (or open the drain cock on older models of the laundry) and allow accumulated moisture and sediment to drain into a container.
4. When the filter (1) has drained, reinstall the drain plug (or close the drain cock).
5. Dispose of drained fuel in accordance with local regulations.


(1) Newer version filter on M85-100
and M85-200 Model Laundry
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(1) Older version filter
on M85 Model Laundry
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The following procedures describe the removal and installation of the sound control panels. Although no operator maintenance on the panels is authorized, removal of damaged and installation of replacement panels may become necessary.

REMOVAL

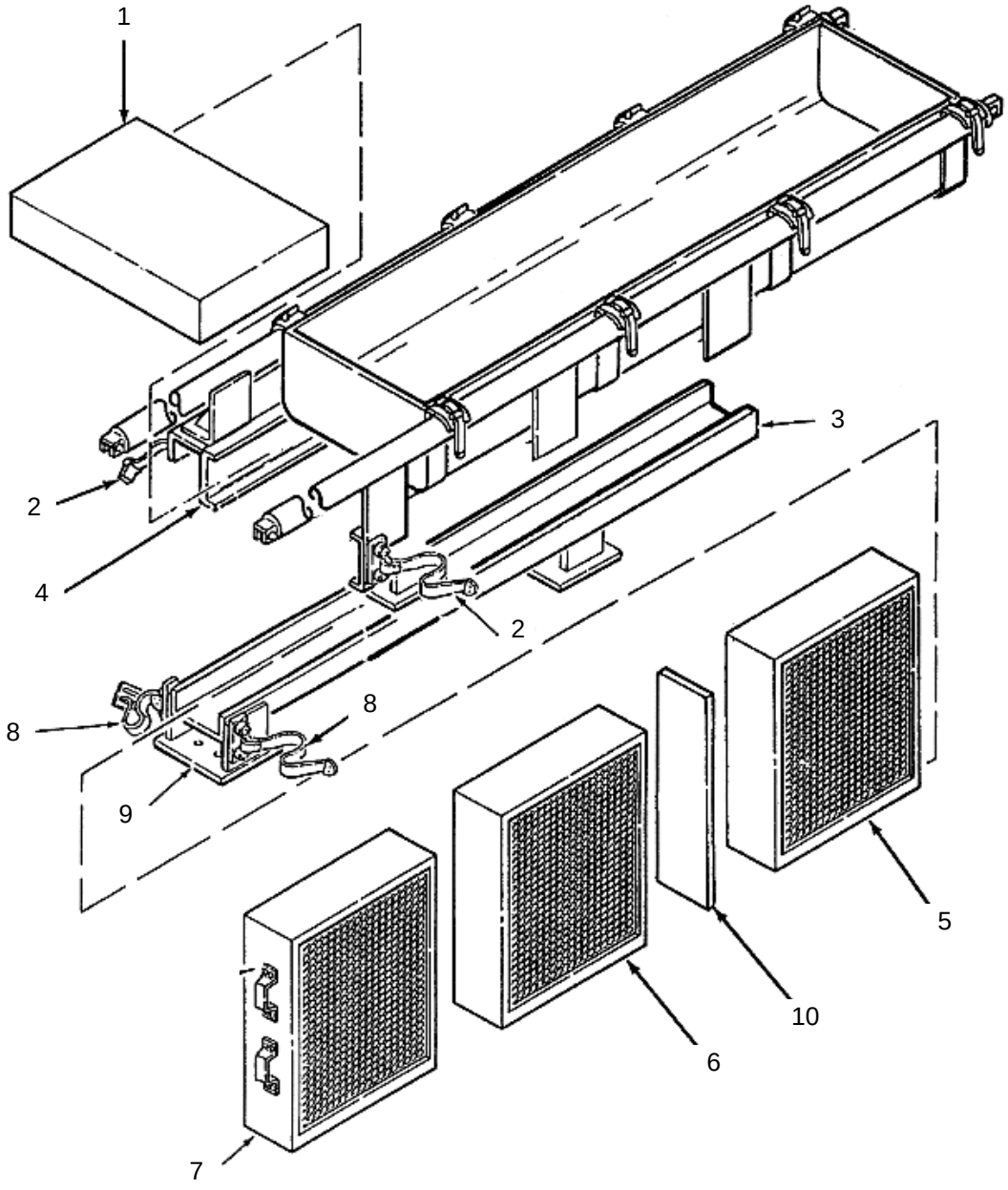
WARNING

Generator exhaust hoses may be extremely hot. Be careful when working near and/or removing them as this could cause serious injury to personnel.

1. To remove the top sound controlling panels (1), perform the sub-steps below:
   a. Release strap (2) from right and center beams (3 and 4).
   b. Remove three top sound controlling panels (1) from right and center beams (3 and 4).
2. To remove the side sound controlling panels (5, 6 and 7), perform the sub-steps below:
   a. Release strap (8) from lower track (9).
   b. Remove sound controlling panels (6 and 7) from lower track (9) and center beam (4).
   c. Remove spacer plate (10).
   d. Remove sound controlling panel (5) from lower track (9) and center beam (4).

INSTALLATION

1. To install the top sound controlling panels (1), perform the sub steps below:
   a. Install three top sound controlling panels (1) on right and center beams (3 and 4), with screen facing generator.
   b. Connect strap (2) on right and center beams (3 and 4).
2. To install the side sound controlling panels (5, 6 and 7), perform the sub-steps below:
   a. Install one side sound controlling panel (5) screen facing generator in lower track (9) and center beam (4).
   b. Install spacer plate (10) and sound controlling panels (6 and 7) in lower track (9) and center beam (4).
   c. Connect strap (8) on lower track (9).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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
LUBRICATION INSTRUCTIONS

LUBRICATION INSTRUCTIONS

NOTE

To prolong the service life of the M85 series laundries, it is very important to follow the lubrication instructions in the specified technical manuals.

The following lubrication orders contain instructions for the equipment indicated:

Laundry Unit. Refer to LO 10-3510-222-12 for lubrication instructions.

Generator. Refer to LO 5-6115-585-12 for lubrication instructions.

CAUTION

It is particularly important to follow the lubrication schedule prescribed in TM 9-2330-376-14&P for the trailer front brake handle. An inoperable handle will cause serious damage to the trailer when it is moved.

Trailer. Refer to TM 9-2330-376-14&P for lubrication instructions.

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CHAPTER 5

SUPPORTING INFORMATION
FOR
LAUNDRY UNIT, TRAILER MOUNTED

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
REFERENCES

SCOPE

This work package lists all pamphlets, field manuals, forms, technical manuals, lubrication orders, and miscellaneous publications referenced in this manual. Also listed are those publications that should be consulted for additional information about the M85 series laundries and its major components.

PAMPHLETS

Functional User's Manual for
The Army Maintenance Management System (TAMMS) ..... DA Pam 738-750

FIELD MANUALS

Basic Cold Weather Manual ..... FM 31-70
First Aid for Soldiers ..... FM 21-11
Decontamination Procedures ..... FM 3-5
Northern Operations ..... FM 31-71
Tactics and Techniques for the Quartermaster Company, Direct Support ..... FM 42-414

FORMS

Discrepancy in Shipment Report ..... SF 361
Equipment Inspection and Maintenance Worksheet ..... DA Form 2404
Product Quality Deficiency Report ..... SF 368
Recommended Changes to Publications and Blank Forms ..... DA Form 2028
Recommended Changes to Equipment Technical Publications ..... DA Form 2028-2
Report of Discrepancy ..... SF 364
Report of Packaging and Handling Deficiencies..... SF 362
Maintenance Request ..... DA Form 2407
Equipment Log Assembly (Records) ..... DA FORM 2408-9

TECHNICAL MANUALS

Painting Instruction For Field Equipment..... TM 43-0139

Unit, Direct Support, and General Support Maintenance Manual
Laundry Unit, Trailer-Mounted, Model M85, M85-100, M85-200..... TM 10-3510-222-24

Repair Parts and Special Tools List
Laundry Unit, Trailer-Mounted, Model M85, M85-100, M85-200.....TM 10-3510-222-24P

Operator and Organizational Maintenance Manual for Generator Set,
Diesel (60 Hz), Engine Driven, Tactical Skid MTD, 10kW, 3 Phases,
120/208 Volts (60 Hz)..... TM 5-6115-585-12

Operator, Unit, Intermediate, Direct Support and General Maintenance,
(Including Repair Parts and Special Tools List), Trailer, Flatbed, 5-Ton,
4-Wheel, XMIO61E1..... TM 9-2330-376-14&P

TECHNICAL MANUALS – Continued

Procedures for Destruction of Equipment to Prevent Enemy Use ..... TM 750-244-3

Operator, Unit, Intermediate, Direct Support and General Maintenance (Including Repair Parts and Special Tools List), Water Heater Liquid Fuel M80/M85 ..... TM 10-4520-259-13&P

Operator's and Unit Maintenance Manual (Including Repair Parts and Special Tools List), Tank, Fabric, Self-Supporting, 3000 Gallon Water ..... TM 5-5430-227-12&P

Operator's, Unit and Direct Support Maintenance Manual for Distribution Illumination Systems, Electrical (DISE), and Power Distribution Illumination Systems, Electrical (PDISE) consisting of Electrical Feeder System M200, M200 A/P, M100, M100 A/P, M40, M40 A/P, M60, M60 A/P and Electrical Utility Assembly M46 ..... TM 9-6150-226-13

LUBRICATION ORDERS

Lubricating Order, Laundry Unit, Trailer-Mounted, M85 ..... LO 10-3510-222-12

Lubricating Order, Generator Set, Diesel Engine Driven, Tactical Skid Mounted, 10 kW ..... LO 5-6115-585-12

MISCELLANEOUS PUBLICATIONS

Common Table of Allowance(s).....50-970
Common Table of Allowance(s).....8-100

LAUNDRY UNIT TRAILER MOUNTED, M85 MODEL: M85-100, M85-200
COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

INTRODUCTION

This work package identifies components of end item and basic issue items for the M85 series laundries to help you inventory the items required for safe and efficient operation of the equipment.

GENERAL

The Components of End Item and Basic Issue Items List are divided into the following lists:

Components of End Item (COEI). This list is for informational purposes only and is not authority to requisition replacements. These items are part of your laundry unit. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These are essential items required to place your laundry unit in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the Laundry Unit during operation and whenever it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI and BII List.

Column (1), Illus Number, gives you the number of the item illustrated.

Column (2), National Stock Number, identifies the national stock number of the item to be used for requisitioning purposes.

Column (3), Description, CAGEC and Part Number identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parenthesis) and the part number.

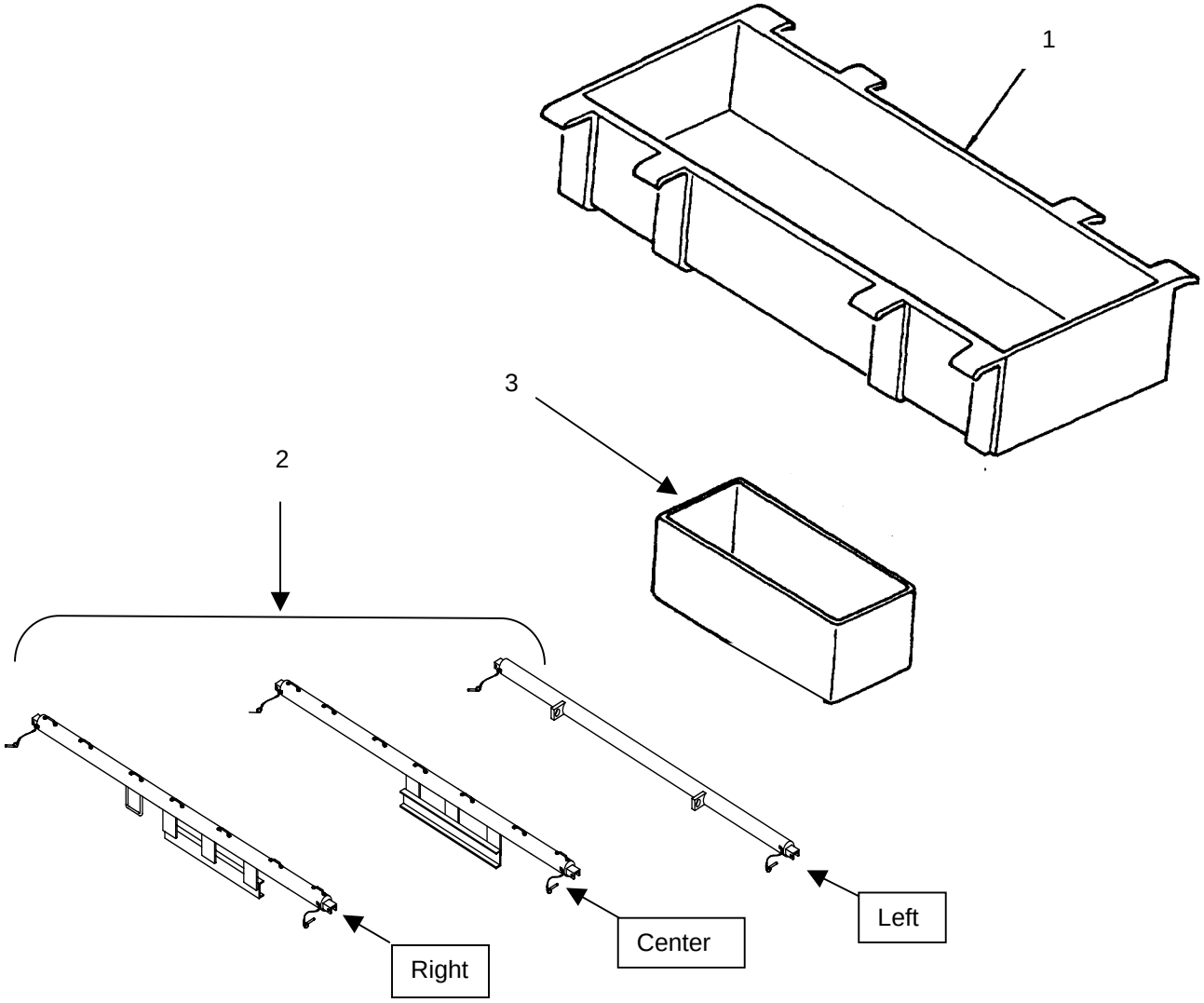
Column (4), Usable On Code, gives you a code if the item you need is not the same for different models of the M85 Laundry. The following UOCs are used for the M85 series laundries:

ERG	Model M85-100
FGD	Model M85-200

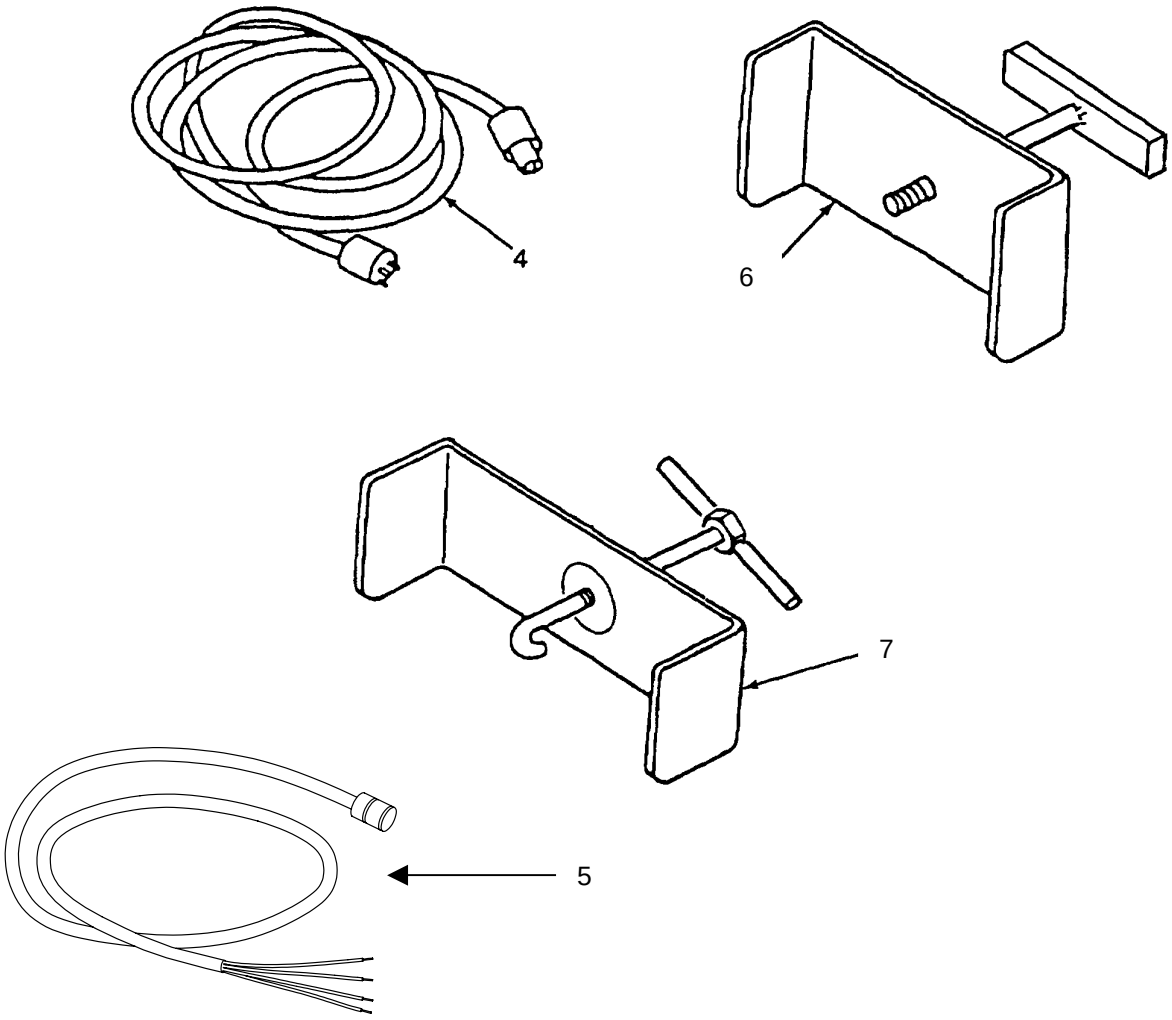
Column (5), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column two.

Column (6), Qty Rqr, Column. Indicates the quantity required.

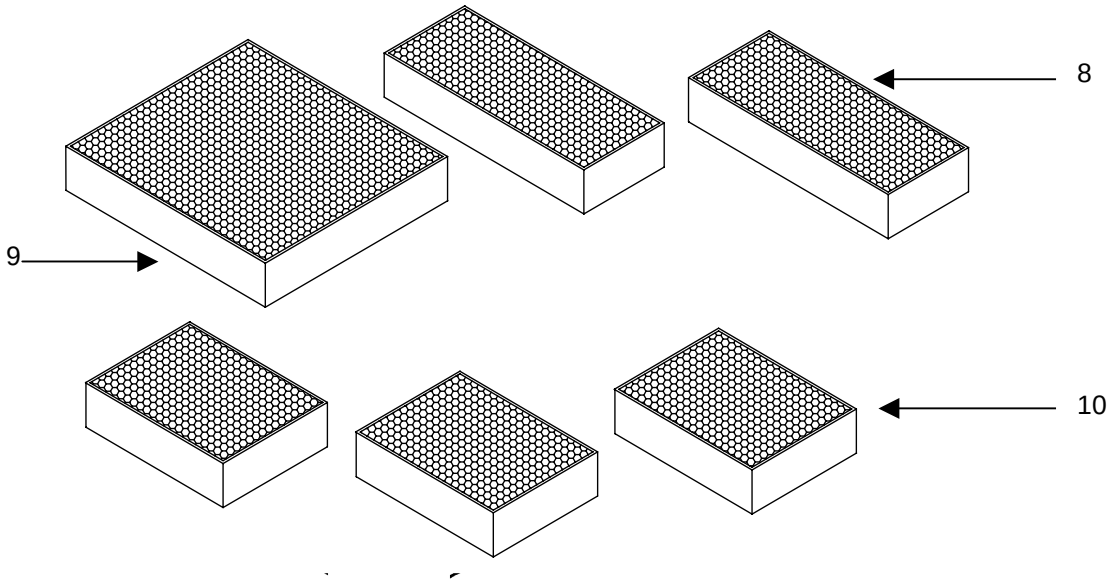
COMPONENTS OF THE END ITEM (COEI) LIST

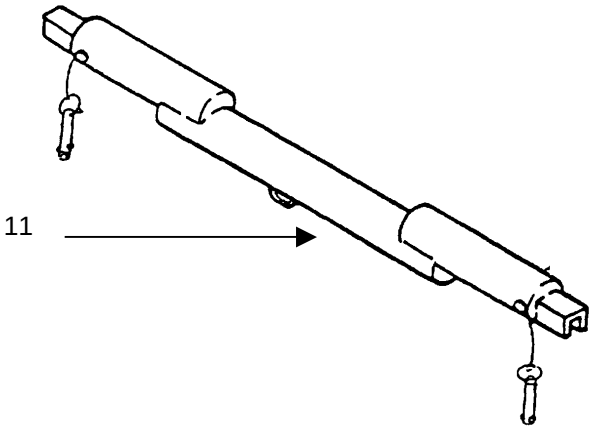


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
1	3510-01-375-0201	BASKET ASSY, HOSE (90598) 6-1-9955		EA	2
2	3510-01-375-0197	BEAM, ASSY:			
		Left (90598) 6-2-2418		EA	1
	4540-01-375-2324	Right (90598) 1-6-0103		EA	1
	3510-01-374-0561	Center (90598) 1-6-0104		EA	1
3	3510-01-248-5296	BIN, ASSY, DRYER (81337) 6-1-9906		EA	1

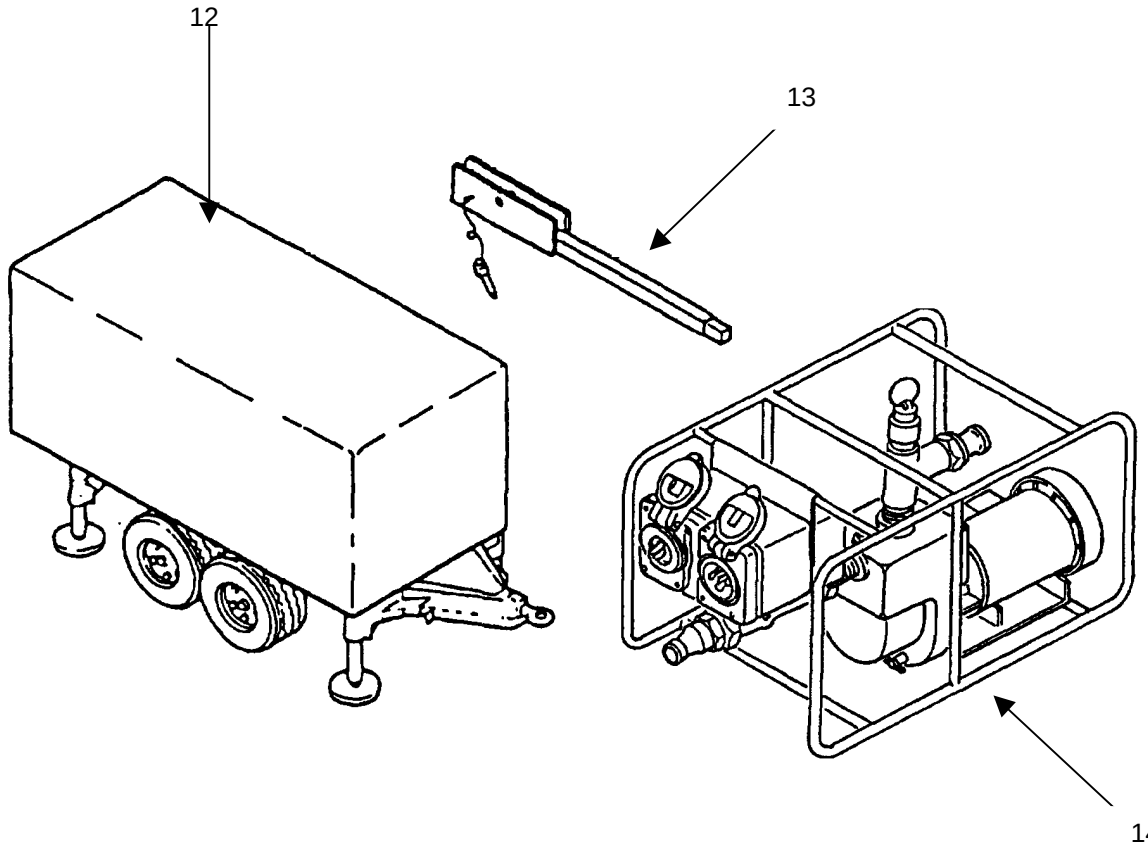


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
4	6150-01-373-9419	POWER DISTRIBUTION (Water Pump) (90598) 6-1-9926		EA	1
5	6150-01-275-7930	CABLE ASSY, POWER, ELECTRIC (81337) 6-1-9924		EA	1
6	3510-01-279-3980	CLAMP, SHORT (81337) 6-1-9433		EA	1
7	3510-01-247-4797	CLAMP, LONG (81337) 6-1-9430		EA	1

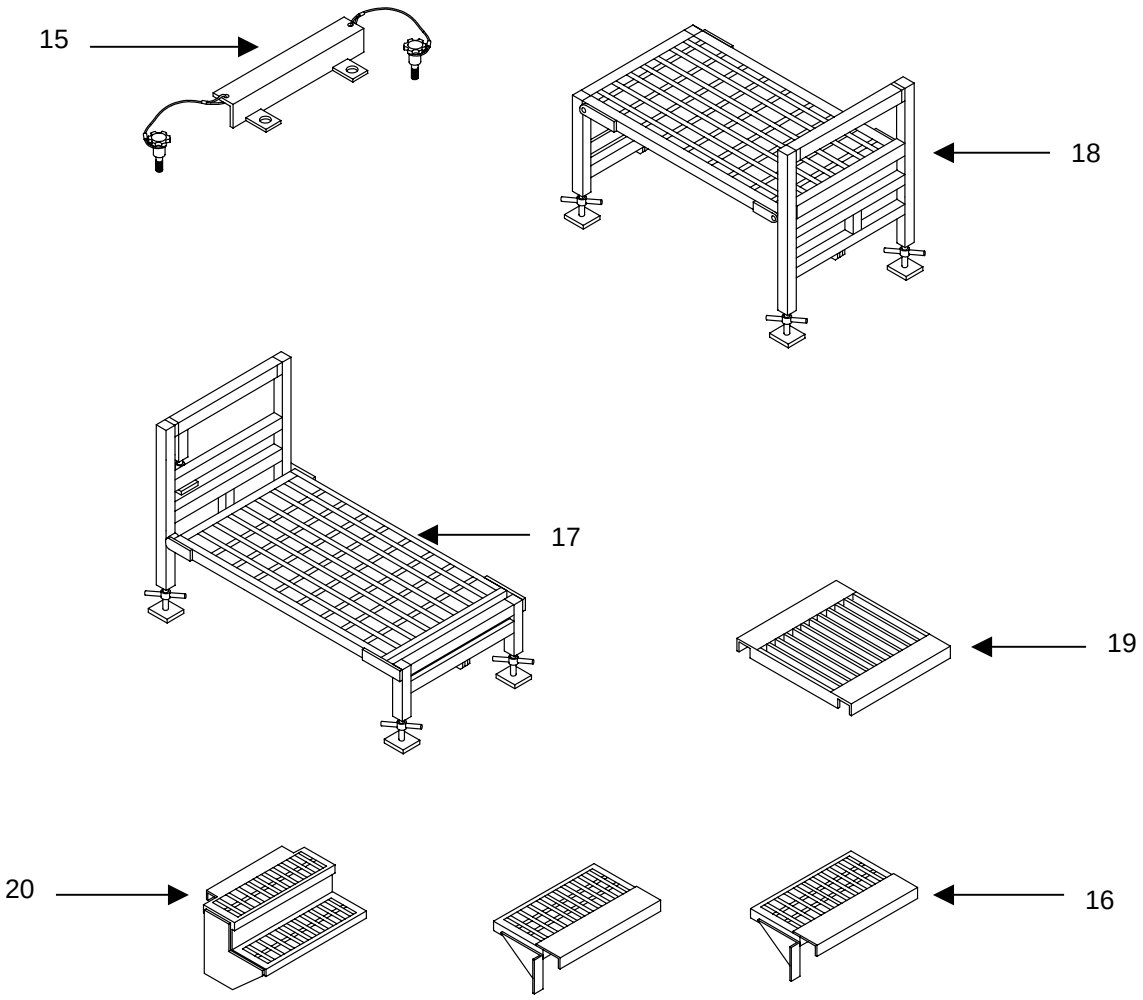




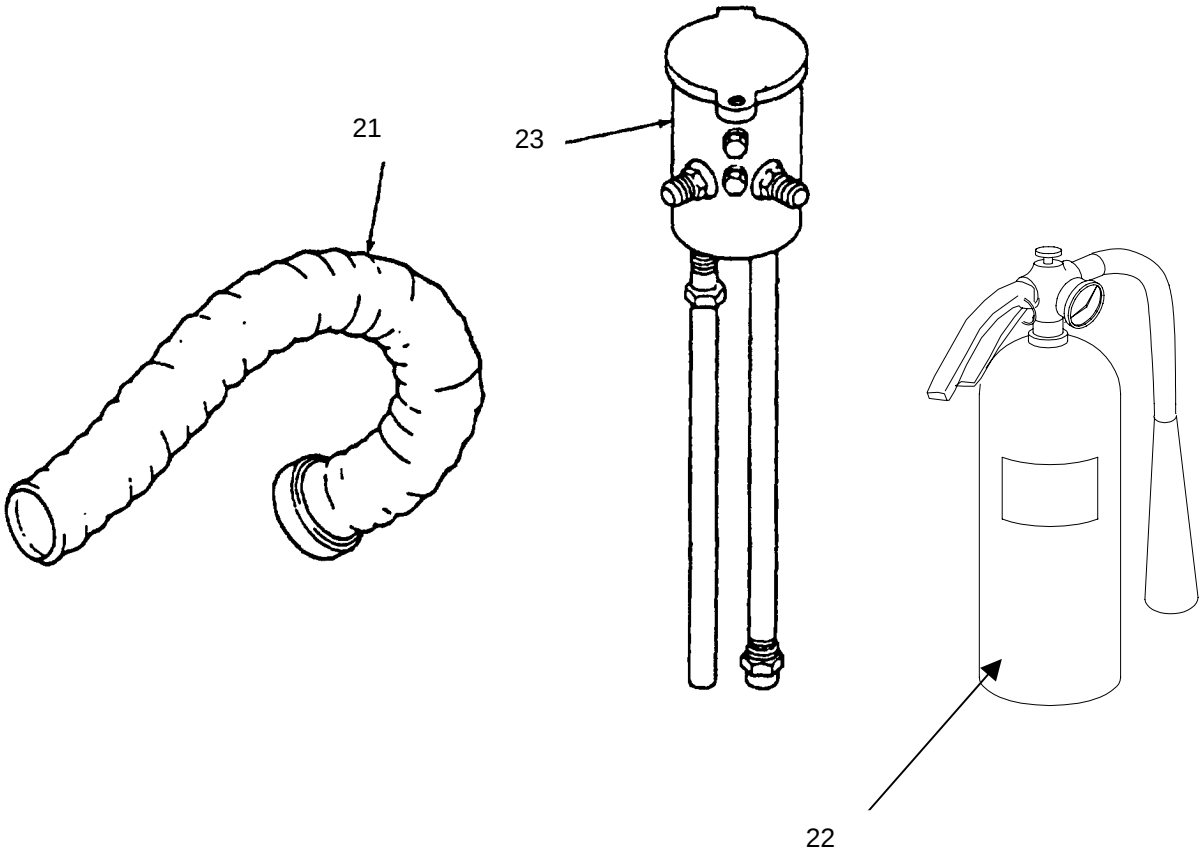
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
		PANEL, SOUND DEADENING:			
8	5640-01 -245-6934	Side Panel, Small 81337) 1-6-0114		EA	2
9	5640-01-285-4288	Side Panel, Large 81337) 6-2-2400		EA	1
10	3510-01-246-9256	Top Panel 81337) 1-6-0118		EA	3
11	3510-01 -246-9258	STRUT ASSY, TARP (81337) 6-1-9416		EA	2



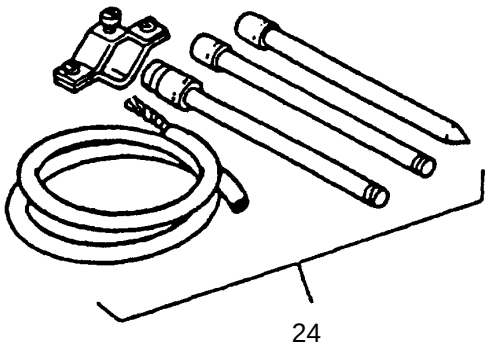
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
12	3510-01-253-4303	TARPAULIN (Cover) (81337) 6-1-9962		EA	1
13	3510-01-250-3645	WORKSTAND STORAGE SUPPORT (81337) 6-1-9859		EA	2
14	4510-01-245-6936	WATER PUMP ASSY (81337) 6-1-9932		EA	1

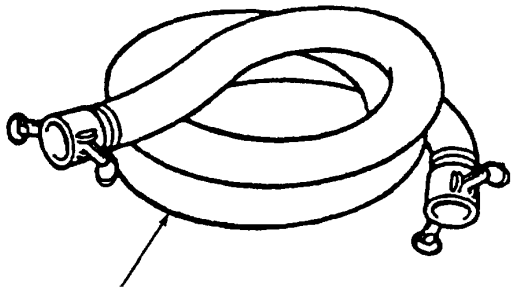


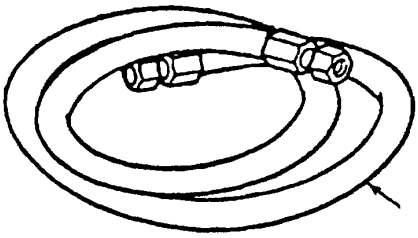
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
15	2930-01 -248-9889	WATERPUMP TIEDOWN ASSY (81337) 6-1-9443		EA	2
16	3510-01-242-7258	STEP ASSEMBLY, PLATFORM (81337) 6-1-9949		EA	2
17	3510-01-440-4569	WORK PLATFORM ASSY, WASHER (81337) 6-1-8356		EA	1
18	3510-01-375-0199	WORK PLATFORM ASSY, DRYER (90598) 6-2-2411		EA	1
19	3510-01-440-4370	PLATFORM ASSY, SHORT (81337) 6-1-9855		EA	1
20	4940-01-309-4488	STAIR ASSY, TWO STEP (81337) 6-2-2403		EA	1

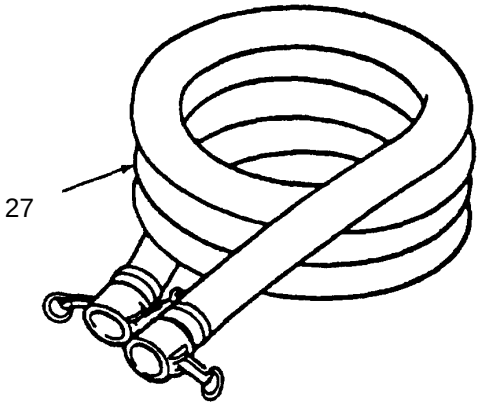


(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
21	4720-00-708-0407	HOSE, AIR DUCT (Dryer Lint Exhaust) (81349) MIL, -fH-7365, Size A		EA	1
22	4210-00-899-2491	FIRE EXTINGUISHER (81348) 6-1-8285		EA	1
23	4510-01-214-9139	ADAPTER (Drum Fill) (81337) 6-1-8285		EA	2

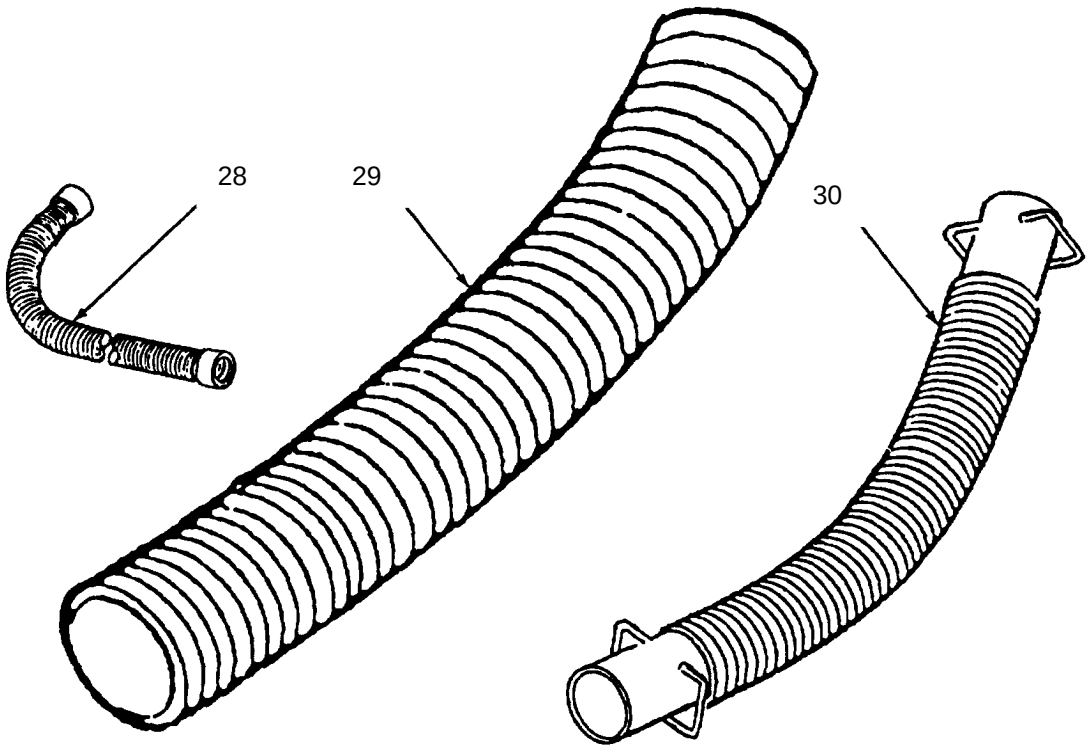




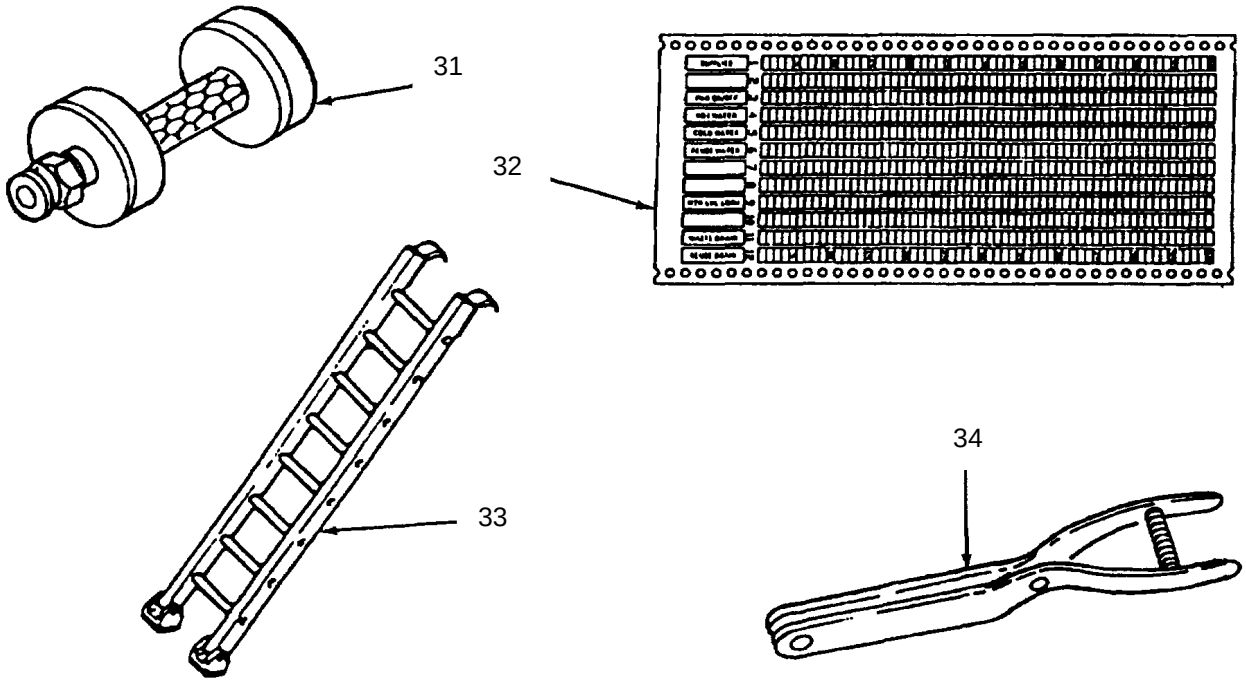




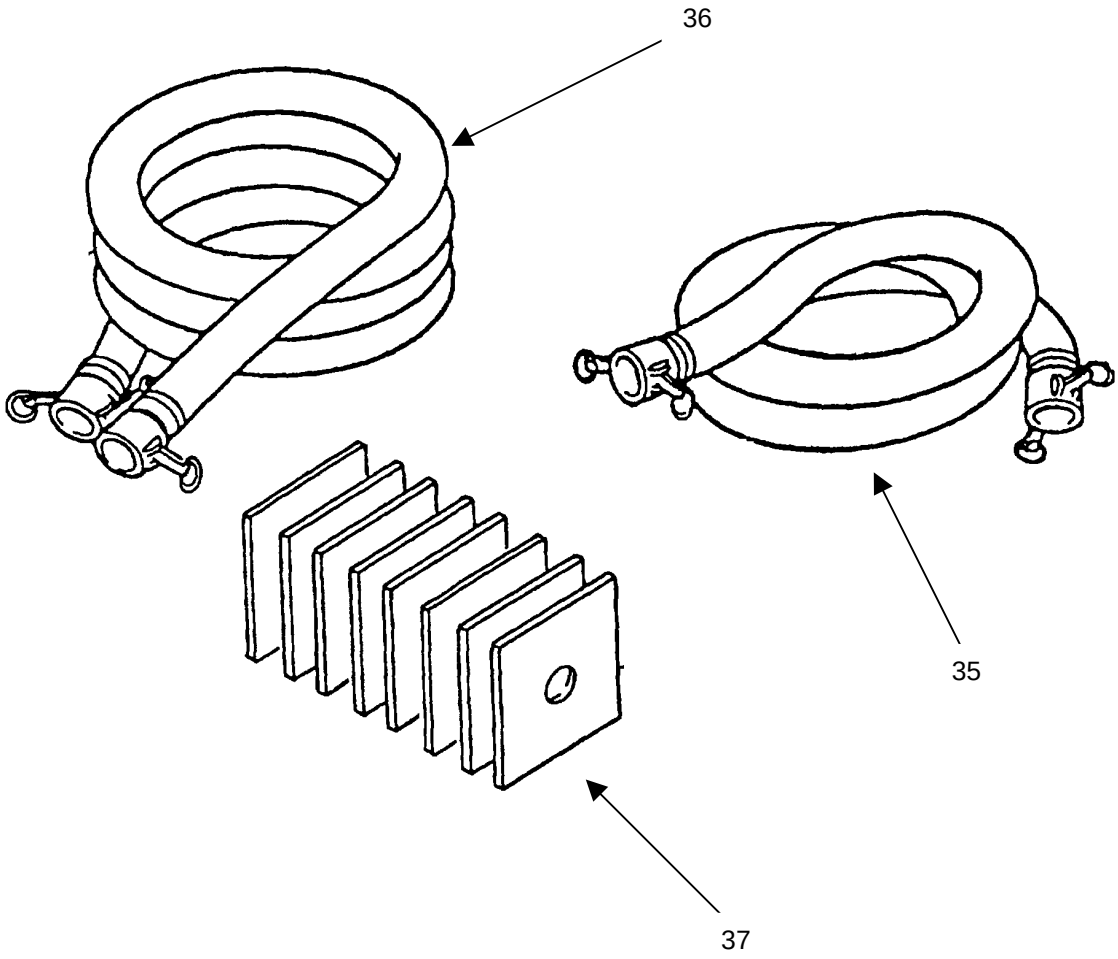
(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
24	5975-00-878-3791	GROUND ROD ASSY, SECTIONAL W/ATTACHMENTS (81349) MIL-R-1 1461		EA	1
25	4720-01-297-9083	HOSE ASSY, NONMETALLIC (81337) 6-1 -9946-3, 25 ft, 1-1/2 in dia Suction Strainer to Water Pump Water Pump to Water Heater Washer Bin to Drain Field		EA	3
26	4720-00-805-2676	HOSE, FUEL (Dryer, Water Heater) (96906) MS28741 -8-3000, 25 ft	FGD	EA	4
		HOSE FUEL RETURN (Dryer, Water Heater) (81337) 6-1-9836-65, 25 ft MS28741-8-1440	ERG	EA	4
27	4720-01—297-9084	HOSE, NONMETALLIC (Main Drain) (90598) 6-1-9946-4, 25 ft, 2-1/2 in dia		EA	1



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
28	4720-01-461-4681	HOSE, GENERATOR EXHAUST (81337) 6-2-2419		EA	2
29	4720-01-261-6815	HOSE, METAL, (Dryer Heater Exhaust) (81337) 6-2-2303		EA	2
30	4720-01-375-5445	DUCT, BURNER EXHAUST (Water Heater) (90598) 6-2-2427		EA	2

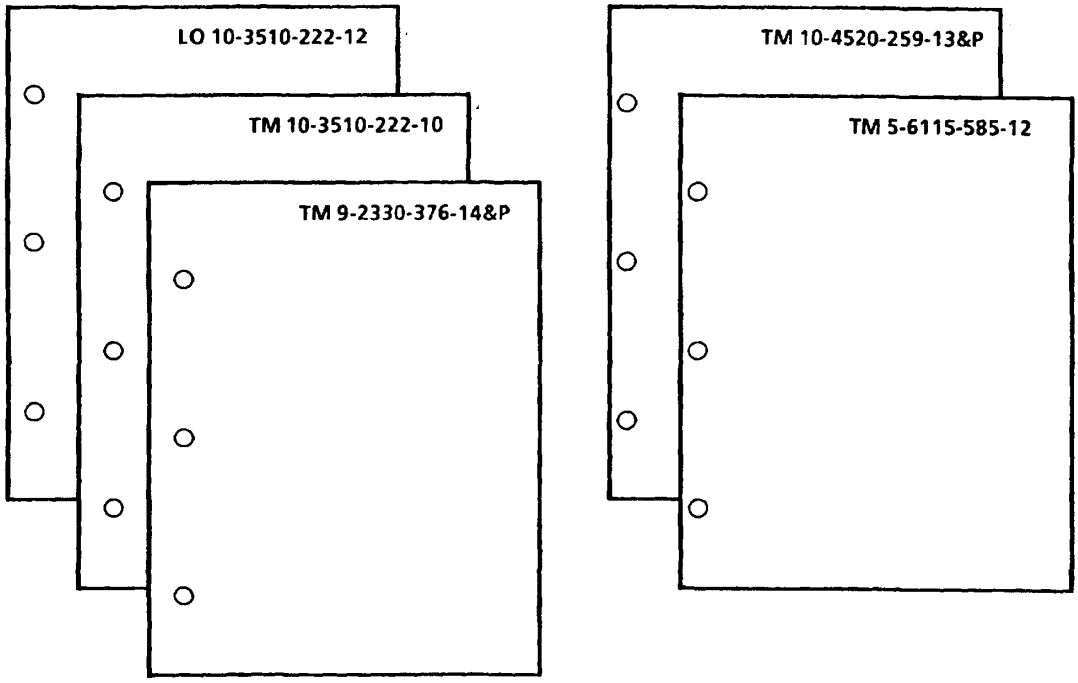

31
32
33
34

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
31	4730-01-249-1969	STRAINER, SUCTION (81337) 6-1-8359		EA	1
32	7530-01-399-5274	CARD, TIMER, MACHINE, OPERATING (05789) 178-8015 (10 blank)		EA	20
	7530-01-399-3710	CARD, TIMER, MACHINE, OPERATING (05789) 178-8030		EA	1
	7530-01-399-3711	CARD, TIMER, MACHINE, OPERATING (05789) 178-8031		EA	1
	7530-01-399-3709	CARD, TIMER, MACHINE, OPERATING (05789) 178-8032		EA	1
	7530-01-399-3694	CARD, TIMER, MACHINE, OPERATING (05789) 178-8033		EA	1
	7530-01-399-3696	CARD, TIMER, MACHINE, OPERATING (05789) 178-8034		EA	1
	7530-01-399-3695	CARD, TIMER, MACHINE, OPERATING (05789) 178-8035		EA	1
	7530-01-399-3697	CARD, TIMER, MACHINE, OPERATING (05789) 178-8036		EA	1
	7530-01-399-3698	CARD, TIMER, MACHINE, OPERATING (05789) 178-8037		EA	1
	7530-01-399-3699	CARD, TIMER, MACHINE, OPERATING (05789) 178-8038		EA	1
	7530-01-399-3700	CARD, TIMER, MACHINE, OPERATING (05789) 178-8039		EA	1
33	2540-01-374-3700	LADDER ASSY (90958) 6-2-2426		EA	1
34	7520-01-361-8980	PUNCH, CARD (26531) A90		EA	1



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
35	4720-01-297-9085	HOSE, NONMETALLIC (Washer to Water Heater) (81337) 6-1 -9946-1, (8ft, 1 1/2 in dia)		EA	1
36	4720-01-297-9082	HOSE, NONMETALLIC (Washer Bin to Drain Field) (81337) 6-1 -9946-2, (40 in, 1 1/2 in dia)		EA	1
37	4720-01-261-6815	FOOTING PLATFORM (81337) 6-2-2434		EA	8

BASIC ISSUE ITEMS (BII) LIST



(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION CAGEC AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY RQT
1	N/A	LUBRICATION ORDER LO 10-3510-222-12		EA	1
2	N/A	OPERATOR'S MANUAL TM 10-3510-222-10		EA	1
3	N/A	TRAILER MANUAL TM 9-2330-376-I 4&P		EA	1
4	N/A	GENERATOR OPERATOR'S MANUAL TM 5-6115-585-12		EA	1
5	N/A	WATER HEATER MANUAL TM 10-4520-259-13&P		EA	1
6	N/A	HOSE, GARDEN, 6-FOOT (81348) L-H-520-50		EA	1

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LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
ADDITIONAL AUTHORIZATION LIST (AAL)

INTRODUCTION

This appendix lists additional items that you are authorized for the support of the M85 series laundry units.

GENERAL

This list identifies items that do not have to accompany your laundry unit and that do not have to be turned in with it. These items are authorized for use by CTA, MTOE, TDA, or JTA.

Explanation of Columns in the AAL:

Column (1) National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.

Column (2) Description, CAGEC, and Part Number, identifies the Federal Item Name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGE (Commercial and Government Entity Code) (in parenthesis) and the part number.

Column (3), Usable On Code (UOC), when applicable, gives you a code if the item you need is not the same for different models of equipment. UOCs for the M85 series laundries are as follows:

Model M85-100	ERG
Model M85-200	FGD

Column (4), UM (unit of measure) indicates how the item is issued for the National Stock Number shown in column (1).

Column (5), Qty Recm, indicates the quantity recommended.

ADDITIONAL AUTHORIZATION ITEMS LIST

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION CAGEC&PART NUMBER	(3) USABLE ON CODE	(4) U/I RECM	(5) QTY
4230-01-133-4124	Decontaminating Apparatus (81349) MIL-D-12468		EA	I
6230-00-163-1856	Flashlight (81348) W-F-00421		EA	1
6640-00-063-7879	Funnel, Common Laboratory (95352) 802PE		EA	1
5120-00-061-8543	Hammer, Hand (81348) GGG-H-86		EA	1
NO NSN	Nipple, Quick-Disconnect (7G217) 25 SAAL (2.50” ID adapter, male to male)		EA	AR
4730-01-338-5165	Nipple, Quick-Disconnect (7G217) MS 39352-1 (1.50” ID adapter, male to male)		EA	AR
7240-00-025-3377	Can, Gas, Military (81349) MIL-C-1283 (5 Gallon)		EA	AR
5340-00-682-1508	Padlock (81348) FF-P-101		EA	1
5120-00-278-0352	Pliers, Slip Joint (81348) GGG-P-471		EA	1
5120-00-473-6476	Pliers, Slip Joint: 10-IN., Adjustable (80212) P489		EA	1
5120-00-234-8912	Screwdriver, Cross Tip: 6-IN. (C7127) SSDP63		EA	1
51 20-00-227-7334	Screwdriver, Flat Tip; 10-IN (81348) GGG-S-121		EA	1
5120-00-237-6985	Screwdriver, Flat Tip; 8-IN. (81348) GGG-S-121		EA	1
5120-01 -01 3-1676	Slide Hammer, Ground (45225) P74-144 (for ground rod)		EA	1
5120-00-264-3796	Wrench, Adjustable: 12-IN. (81348) GGG-W-631		EA	1
5120-00-240-5328	Wrench, Adjustable: 8-IN. (81348) GGG-W-631		EA	I
4720-00-729-5334	Hose, Garden, 50-foot (81348) L-H-520-50		EA	1
N/A	Fuel Drum 55-Gallon (81348) PPP-D-1152B		EA	2

LAUNDRY UNIT, TRAILER MOUNTED, MODEL M85-100, M85-200
EXPENDABLE/DURABLE ITEMS LIST

INTRODUCTION

This appendix lists expendable/durable supplies and materials you will need to operate and maintain your M85 series laundry unit. This listing is for informational purposes only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V, Repair Parts, and Heraldic Items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

Explanations of Columns in the Expendable/Durable Items List

Column (1) Item Number. This number is assigned to each entry in the list and is referenced in the narrative instructions to identify the item (e.g., “(Use wiping rags (WP0065, Table 1, Item 1)”.

Column (2) Level. This column includes the lowest level of maintenance that requires the listed item.

- **C** Operator or Crew
- **O** Unit Maintenance
- **F** Direct Support Maintenance
- **H** General Support Maintenance
- **D** Depot Maintenance

Column (3) National Stock Number. This is the NSN assigned to the item that you can use to requisition it.

Column (4) Item Name, Description, CAGEC, and Part Number. This column provides the other information you need to identify the item.

Column (5), U/M (unit of measure) indicates how the item is issued for the National Stock Number shown in column (1).

EXPENDABLE/DURABLE ITEMS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) ITEM NAME, DESCRIPTION, CAGE CODE, PART NUMBER	(5) U/M
1	C	7920-00-205-3570	Wiping Rags	LB
2	C	5330-00-360-0595	Gasket, 1 ½" (96906) MS27030-5	EA
3	C	5330-00-075-3268	Gasket, 2 ½" (96906) MS27030-7	EA
4	C	91 30-01-305-5597	Turbine Fuel, Aviation (JP-8) MIL-T-83133	GL (One gl)
5	C	9140-00-286-5284	Fuel, Diesel VVF-800 (DF-A, OF-I, DF-2)	DR (55 gl)
6	C	5975-00-156-3253	Strap, Tiedown, Electrical Components (81349) MIL-S-23190	HD
7	C	7930-00-965-9830	Rinse Additive, Laundry	DR (175 lb)
9	C	6850-01-015-7939	Spot Remover	GL (One gl)
10	C	6850-00-297-6653	Decontaminating Agent	DR (50 lb)
11	C	8030-00-264-3875	Water Repellent Compound, Textile Finish	CN (5 gl)
12	C	6810-00-141-2942	Citric Acid, Anhydrous, Technical	DR (50 lb)
13	C	7930-00-929-1220	Detergent, Laundry	DR (50 lb)
15	C	6810-00-264-6523	Sodium Orthosilicate, Technical	DR (100 lb)
16	C	7930-00-924-5366	Sour, Laundry	DR (100 lb)

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By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the Secretary of the Army

0324801

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These are the instructions for sending an electronic 2028

The following format must be used if submitting an electronic 2028. The subject line must be exactly the same and all fields must be included; however only the following fields are mandatory: 1, 3, 4, 5, 6, 7, 8, 9, 10, 13, 15, 16, 17, and 27.

From: "Whomever" <whomever@avma27.army.mil>
To: amssbriml@natick.army.mil

Subject: DA Form 2028

1. From: Joe Smith
2. Unit: home
3. Address: 4300 Park
4. City: Hometown
5. St: MO
6. Zip: 77777
7. Date Sent: 19-OCT-93
8. Pub no: 55-2840-229-23
9. Pub Title: TM
10. Publication Date: 04-JUL-85
11. Change Number: 7
12. Submitter Rank: MSG
13. Submitter FName: Joe
14. Submitter MName: T
15. Submitter LName: Smith
16. Submitter Phone: 123-123-1234
17. Problem: 1
18. Page: 2
19. Paragraph: 3
20. Line: 4
21. NSN: 5
22. Reference: 6
23. Figure: 7
24. Table: 8
25. Item: 9
26. Total: 123
27. Text:

This is the text for the problem below line 27.

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	**DATE** *21 October 2003*

TO: *(Forward to proponent of publication or form) (Include ZIP Code)*
COMMANDER
U.S. ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND
ATTN: AMSSB-RIM-L
KANSAS STREET
NATICK, MA 01760-5052

FROM: *(Activity and location) (Include ZIP Code)*
PFC Jane Doe
CO A 3rd Engineer BR
Ft. Leonardwood, MO 63108

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-1670-296-23&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*
	0036 00-2				*1*	*In table 1, Sewing Machine Code Symbols, the second sewing machine code symbol should be MD ZZ not MD 22.* *Change the manual to show Sewing Machine, Industrial: Zig-Zag; 308 stitch; medium-duty; NSN 3530-01-181-1421 as a MD ZZ code symbol.*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Jane Doe, PFC	508-233-4141	Jane Doe *Jane Doe*

SAMPLE

TO: (*Forward direct to addressee listed in publication*)	FROM: (*Activity and location) (Include ZIP Code*)	DATE
COMMANDER U.S. ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND ATTN: AMSSB-RIM-L KANSAS STREET NATICK, MA 01760-5052	*PFC Jane Doe* *CO A 3rd Engineer BR* *Ft. Leonardwood, MO 63108*	*21 October 2003*

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE
TM 10-1670-296-23&P	30 October 2002	Unit Manual for Ancillary Equipment for Low Velocity Air Drop Systems

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION
0066 00-1					*4*			*Callout 16 in figure 4 is pointed to a D-Ring. In the Repair Parts List key for figure 4, item 16 is called a Snap Hook. Please correct one or the other.*

PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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TO: *(Forward to proponent of publication or form) (Include ZIP Code)* Commander, U.S. Army Soldier and Biological Chemical Command ATTN: AMSSB-RIM-L, Kansas Street Natick, MA 01760-5052	**FROM:** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER TM 3510-222-10	DATE 31 October 2003	TITLE Operator's Manual for M85-100, M85-200, Laundry Unit Trailer Mounted

ITEM NO.	PAGE NO.	PARA-GRAPH	LINE NO. *	FIGURE NO.	TABLE NO.	RECOMMENDED CHANGES AND REASON *(Provide exact wording of recommended changes, if possible).*

**Reference to line numbers within the paragraph or subparagraph.*

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO: (*Forward direct to addressee listed in publication)*	**FROM:** (*Activity and location) (Include ZIP Code)*	**DATE**

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS (*Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is ODISC4.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE
TO: *(Forward to proponent of publication or form) (Include ZIP Code)* Commander, U.S. Army Soldier and Biological Chemical Command ATTN: AMSSB-RIM-L, Kansas Street Natick, MA 01760-5052	**FROM:** *(Activity and location) (Include ZIP Code)*	

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

The Metric System and Equivalents

Linear Measure

1 centimeter = 10 millimeters = .39 inch
1 decimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigrams = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 feet

Approximate Conversion Factors

To change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce–inches	newton–meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29.573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
ounces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
short tons	metric tons	.907	kilograms	pounds	2.205
pound–feet	newton–meters	1.356	metric tons	short tons	1.102
pound–inches	newton–meters	.11296			

Temperature (Exact)

_F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	_C

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